CITY & BOROUGH OF WRANGELL
ETOLIN STREET AND MEDICAL CAMPUS UTILITIES ASSISTANCE

PROJECT MANUAL
Contract Documents and Specifications

Prepared by:

PND ENGINEERS

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FOR BID

DECEMBER 2011

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

The engineering material and data contained in these Contract Documents were prepared under the supervision and direction of the undersigned, whose seals as professional engineers are affixed below.

12/19/2011

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DIVISION 0

BIDDING AND CONTACT REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT

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SECTION 00030 - NOTICE INVITING BIDS

OBTAINING CONTRACT DOCUMENTS. The Contract Documents are entitled:

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

Notice is hereby given that the City and Borough of Wrangell, Alaska will receive sealed bids for the construction of Etolin Street and Medical Campus Utilities Assistance.

The Contract Documents, including one set of reduced scale drawings, may be obtained at the Borough Clerks Office, 205 Brueger Street, Wrangell, Alaska 99929 (Ph. 907-874-2381). A non-refundable fee of $50.00 made payable to the City and Borough of Wrangell is required for each set of contract documents. Additional charges will be required for special handling or delivery of the documents by means other than first class mail. The Contract Documents may also be downloaded free of charge on the City & Borough of Wrangell website (***www.wrangell.com***) under the News and Events section. Downloading Contract Documents from the City & Borough of Wrangell's website requires registration with the Borough Clerk in order to be placed on the Plan Holders List and to ensure receipt of subsequent Addenda. Failure to register may adversely affect your proposal. It is the Offeror's responsibility to insure that they have received all Addenda affecting this Solicitation. To be registered, contact the Borough Clerk at 907-874-2381 or at ctyclerk@aptalaska.net.

DESCRIPTION OF WORK. WORK consists of all activities necessary to construct the Etolin Street and medical campus utilities as shown in the contract documents. The WORK generally includes gravel road, storm runoff collection, drainage culvert, water main, subdivision force main system, clinic pump station and medical campus force main system and other improvements. The Engineer's Estimate for all work is approximately $1,500,000.

SITE OF WORK. The WORK is located at the intersection of Etolin Street and Cedar Street in Wrangell, Alaska.

COMPLETION OF WORK. The OWNER will open the work site to the CONTRACTOR immediately following the Notice to Proceed. All utilities shall be fully completed by May 15th, 2012. Substantial completion must be reached by June 15th, 2012.

BIDDING, CONTRACT, or TECHNICAL QUESTIONS. All communications relative to this WORK, prior to opening Bids, shall be directed to the following:

Amber Al-Haddad
Project Manager
Telephone: (907) 874-3494

BID SECURITY. Each bid shall be accompanied by a bid bond, cashier's check or certified check made payable to the City and Borough of Wrangell in the amount of five percent of the total bid price. This serves as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it.

RECEIPT OF BIDS. Sealed bids will be received by the City and Borough of Wrangell, Post Office Box 531, Wrangell, Alaska 99929, located at the Borough Clerk's Office, 205 Brueger Street, Wrangell, Alaska 99929, until 2:00 PM prevailing time on January 16th , 2011. Opening date and time may be changed to a later date or time via Addendum. Clearly mark on the outside of the envelope **"Request for Bids, Etolin Street and Medical Campus Utilities Assistance, Opening Date January 16th, 2011"**. Proposals may not be withdrawn for 60 Days following date of opening.

SECTION 00030 - NOTICE INVITING BIDS

OPENING OF BIDS. The Bids will be publicly opened and read at 2:00 PM on January 16th, 2011 in the Borough Assembly Chambers of the City and Borough of Wrangell, Alaska.

SUBCONTRACTORS. The apparent low Bidder is required to complete and submit the following documentation within five calendar days following the posting of bids by the City and Borough of Wrangell:

- Subcontractor Report, Section 00360.

CONTRACTOR'S LICENSE. All contractors are required to have a current Alaska Contractor's License, prior to submitting a Bid, and a current Alaska Business License prior to award of the bid.

BID TO REMAIN OPEN. The Bidder shall guarantee the Bid for a period of 60 Days from the date of Bid opening. Any component of the Bid including additive alternates may be awarded anytime during the 60 Days.

OWNER'S RIGHTS RESERVED. The OWNER reserves the right to reject any or all Bids, to waive any informality in a Bid, and to make award to the lowest responsive, responsible Bidder as it may best serve the interests of the OWNER.

OWNER: The City and Borough of Wrangell

By: _____ _____

Timothy Rooney, City and Borough Manager Date

END OF SECTION

SECTION 00100 - INSTRUCTIONS TO BIDDERS

1.0 DEFINED TERMS. Terms used in these "Instructions to Bidders" and the "Notice Inviting Bids" which are defined in the General Conditions have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to the OWNER, as distinct from a sub-bidder, who submits a Bid to a Bidder.

2.0 INTERPRETATIONS AND ADDENDA.

A. INTERPRETATIONS. All questions about the meaning or intent of the Contract Documents are to be directed to the ENGINEER. Interpretations or clarifications considered necessary by the ENGINEER in response to such questions will be issued by Addendum, mailed, faxed, or delivered to all parties recorded by the OWNER as having received the Contract Documents. Questions received less than 7 Days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.

B. ADDENDA. Addenda may be issued to modify the Contract Documents as deemed advisable by the OWNER. The OWNER may issue addenda by fax, with a follow-up addendum copy issued by regular mail. Addenda may be faxed and mailed less than 7 Days prior to the anticipated Bid opening. The OWNER will make all reasonable attempts to ensure that all planholders receive faxed addenda, however, it is strongly recommended by the OWNER that Bidders independently confirm the contents, number, and dates of each Addenda prior to submitting a Bid.

3.0 FAIR COMPETITION. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER believes that collusion exists among the Bidders, all Bids will be rejected.

4.0 RESPONSIBLE BIDDER. Only responsive Bids from responsible Bidders will be considered. A Bid submitted by a Bidder determined to be not responsible may be rejected. A responsible Bidder is one who is considered to be capable of performing the WORK.

A. The general standards for responsibility are to determine the CONTRACTOR's ability to perform WORK adequately, considering the CONTRACTOR's

1. Financial Resources
2. Ability to Meet Delivery Standards
3. Past Performance Record
    a. References from others on CONTRACTOR's performance
    b. Record of performance on prior OWNER contracts
4. Record of Integrity
5. Obligations to OWNER
    a. Bidders must be registered as required by law and in good standing for all amounts owed to the OWNER within 5 Days of OWNER's Notice of Intent to Award.

B. Special standards for responsibility, if applicable, will be specified. These special standards establish minimum standards or experience required for a responsible Bidder on a specific contract.

C. Before a Bid is considered for award, a Bidder may be requested to submit information documenting its ability and competency to perform the WORK, according to general standards of responsibility and any special standards which may apply. It is Bidder's responsibility to submit sufficient, relevant, and adequate information. OWNER will make its determination of responsibility and has no obligation to request clarification or supplementary information.

5.0 RESPONSIVE BIDS. Only responsive Bids will be considered. Bids may be considered non-responsive and may be rejected. Some of the reasons a Bid may be rejected for being non-responsive are:

A. If the Bid is on a form other than that furnished by the OWNER, or legible copies thereof; or if the form is altered or any part thereof is detached; or if the Bid is improperly signed.

B. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.

C. If the Bidder adds any unauthorized conditions, limitations, or provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award. This does not exclude a Bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one bid opening, provided that any selection of awards will be made by the OWNER.

D. If the Bid does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.

E. If the Bidder has not acknowledged receipt of each Addendum.

F. If the Bidder fails to furnish an acceptable Bid guaranty with the Bid.

G. If any of the unit prices bid are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the OWNER.

H. If a bid modification does not conform to Article 15.0 of this Section.

6.0 BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE. It is the responsibility of each Bidder before submitting a Bid:

A. To examine thoroughly the Contract Documents, and other related data identified in the bidding documents (including "technical data" referred to below):

1. To visit the site to become familiar with and to satisfy the Bidder as to the general and local conditions that may affect cost, progress, or performance of the WORK;
2. To consider federal, state and local laws and regulations that may affect cost, progress, or performance of the WORK;

3. To study and carefully correlate the Bidder's observations with the Contract Documents, and other related data; and
4. To notify the ENGINEER of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.

7.0 REFERENCE IS MADE TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR IDENTIFICATION OF:

A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports, however, the interpretation of such technical data is the responsibility of the Bidder.

B. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at, or contiguous to, the site have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such drawings, however, the interpretation of such technical data is the responsibility of the Bidder.

C. Copies of such reports and drawings will be made available by the OWNER to any Bidder on request if said reports and drawings are not bound herein. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in Paragraph SGC-4.2 of the Supplementary General Conditions, are incorporated herein by reference.

D. Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site is based upon information and data furnished to the OWNER and the Engineer of Record by the owners of such underground utilities or others, and the OWNER and ENGINEER do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions, or in Section 01530 - Protection and Restoration of Existing Facilities.

E. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.

F. Before submitting a Bid, each Bidder will, at its own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground utilities) at, or contiguous to, the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.

G. On request in advance, the OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.

H. The lands upon which the WORK is to be performed, rights-of-way and easements for access thereto and the lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.

I. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Article 6, "Bidder's Examination of Contract Documents and Site" herein, that without exception the Bid is premised upon performing the WORK required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

8.0 BID FORM.

A. The Bid shall be made on the Bid Schedule(s) bound herein, or on the yellow bid packet provided, or on legible and complete copies thereof, and shall contain the following: Sections 00300, 00310, and the required Bid Security. In the event there is more than one Bid Schedule, the Bidder may bid on any individual schedule or on any combination of schedules. The envelope enclosing the sealed Bids shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall bear the words "BID FOR," followed by the title of the Contract Documents for the WORK, the name of the OWNER, the address where Bids are to be delivered or mailed to, and the date and hour of opening of Bids. The Bid Security shall be enclosed in the same envelope with the Bid.

B. All blanks on the Bid Form and Bid Schedule must be completed in ink or typed.

C. Bids by corporations must be executed in the corporate name by the president, a vice-president (or other corporate officer). The corporate address and state of incorporation must appear below the signature.

D. Bids by partnerships must be executed in the partnership name and be signed by a managing partner, and the official address of the partnership must appear below the signature.

E. The Bidder's Bid must be signed with ink. All names must be printed or typed below the signature.

F. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form. Failure to acknowledge Addenda shall render Bid non-responsive and shall cause its rejection.

G. The address to which communications regarding the Bid are to be directed must be shown.

H. All Bidders must provide evidence of authority to conduct business in Alaska to the extent required by law.

I. On Projects including Federal funding any contractor otherwise qualified to perform the WORK, is not required to be licensed nor to submit application for license in advance of submitting a Bid or having such Bid considered; provided, however, that such exemption does not constitute a waiver of the OWNER's right under existing license laws to require a contractor, determined to be a successful Bidder, to be licensed to do business as a contractor in the State of Alaska in connection with the award of a contract to the successful Bidder.

J. A Bid for the WORK will not be accepted from a contractor who does not hold a valid Alaska Business License and a valid Contractor's License in Alaska (applicable to the type of work bid upon) at the time of opening Bids.

9.0 QUANTITIES OF WORK. The quantities of WORK, or material, stated in unit price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of WORK, or material, will correspond therewith, and reserves the right after award to increase or decrease the amount of any unit price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the unit price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price (see General Conditions, Article 10 Changes In the Work).

10.0 SUBSTITUTE OR "OR-EQUAL" ITEMS. The procedure for the submittal of substitute or "or-equal" products is specified in Section 01300 - CONTRACTOR Submittals.

11.0 SUBMISSION OF BIDS. The Bid shall be delivered by the time and to the place stipulated in the Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time. Oral, telegraphic, telephonic or faxed Bids will not be considered.

12.0 BID SECURITY, BONDS, AND INSURANCE. Each Bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond in an amount of at least 5 percent of the total Bid price. The "total Bid price" is the amount of the base bid, plus the amount of alternate bids, if any, which total to the maximum amount for which the contract could be awarded. Said check or Bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if offered the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said Bonds, if required, and insurance amounts shall be as stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the OWNER. If the Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds must be accompanied by a legible power of attorney.

13.0 RETURN OF BID SECURITY. Within 14 Days after award of the contract, the OWNER will return the Bid securities accompanying such of the Bids as are not considered in making the award. All other Bid securities will be held until the Agreement has been executed. They will then be returned to the respective Bidders whose Bids they accompanied.

14.0 DISCREPANCIES IN BIDS. In the event there is more than one pay item in a Bid Schedule, the Bidder shall furnish a price for all pay items in the schedule, and failure to do so may render the Bid non-responsive and cause its rejection. In the event there are unit price pay items in a Bid Schedule and the "amount" indicated for a unit price pay item does not equal the product of the

unit price and quantity, the unit price shall govern and the amount will be corrected accordingly, and the Bidder shall be bound by said correction. In the event there is more than one pay item in the Bid Schedule and the total indicated for the schedule does not agree with the sum of the prices bid on the individual items, the prices bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Bidder shall be bound by said correction.

15.0 BID MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.

A. Any Bidder may modify a Bid by mail, telegram, or fax **(Fax: 907-874-3952)** provided that such modification is received by the OWNER prior to the time set for opening of Bids. Bid Modifications can be made as a lump sum adjustment or line by line adjustment on a copy of the project bid schedule. Bidders are strongly advised to telephone the City & Borough of Wrangell (**Telephone: 907-874-2381)** to confirm the successful and timely transmission of all fax Bid modifications.

A telegram or fax modification should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices will not be known by the OWNER until the sealed Bid is opened. Modifications shall include both the modification of the unit bid price and the total modification of each item modified. The OWNER shall not be responsible for its failure to receive fax modifications whether such failure is caused by transmission line problems, fax device problems, operator error or otherwise.

B. Unauthorized conditions, limitations, or provisions attached to the Bid will render it informal and cause its rejection as being non-responsive. The completed bid forms shall be without interlineation, alterations, or erasures in the printed text. All changes shall be initialed by the person signing the Bid. Alternative bids will not be considered unless called for.

16.0 WITHDRAWAL OF BID. The Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids prior to the scheduled closing time for receipt of Bids.

17.0 AWARD OF CONTRACT.

A. Award of a contract, if it is awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Technical Specifications and will be made to the lowest responsive, responsible Bidder whose Bid complies with all the requirements prescribed. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the Bids are to remain open. Unless otherwise indicated, a single award will be made for all the pay items in an individual Bid Schedule.

B. If the OWNER has elected to advertise this Project with a base bid and additive or deductive alternates, the OWNER may elect to award the contract for the base bid, or the base bid plus one or more alternates selected by the OWNER. In either case, award shall be made to the responsive, responsible Bidder offering the lowest total bid for the WORK to be awarded.

C. Low Bidder will be determined on the basis of the lowest total of the base bid plus combinations of additive alternatives in order of priority as listed below within the limits of available funding.

Priority No.	Bid Combination
1.	Base Bid

18.0 EXECUTION OF AGREEMENT.

A. All Bids must be approved by the Wrangell Borough Assembly. After the Assembly has approved the award, the OWNER will issue a Notice of Intent to Award to the approved Bidder within 14 days of the Bid Opening. The Bidder to whom award is made shall execute a written Agreement with the OWNER on the Agreement form, Section 00500, and shall secure all insurance and furnish all certificates and bonds required by the Contract Documents within 10 Days from the date stated in the Notice of Intent to Award letter.

B. Failure or refusal to enter into the Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.

19.0 LIQUIDATED DAMAGES. Provisions for liquidated damages are set forth in Section 00500 - Agreement.

20.0 PERMITS. The CONTRACTOR is responsible for all WORK associated with meeting any local, state, and/or federal permit requirements.

END OF SECTION

SECTION 00300 - BID

BID TO: CITY & BOROUGH OF WRANGELL

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the OWNER on the form included in the Contract Documents (as defined in Article 7 of Section 00500 - Agreement) to perform the WORK as specified or indicated in said Contract Documents entitled

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the "Notice Inviting Bids" and "Instructions to Bidders," dealing with the disposition of the Bid Security.

3. This Bid will remain open for the period stated in the "Notice Inviting Bids" unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders," and will furnish insurance certificates, Payment Bond, Performance Bond, and any other documents as may be required by the Contract Documents.

4. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.

5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

6. To all the foregoing, and including all Bid Schedule and information required of Bidder contained in this Bid Form, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefor the Contract Price based on the total bid price(s) named in the aforementioned Bid Schedule.

7. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged by the Undersigned):

Addenda No.	Date Issued	Addenda No.	Date Issued

Give number and date of each Addendum above. Failure to acknowledge receipt of all Addenda will cause the Bid to be non-responsive and shall cause its rejection.

8. The Bidder has read this Bid and agrees to the conditions as stated herein by signing its signature in the space provided below.

Dated:	_____	Bidder:	_____ (Company Name)
Contractor's License No.:	_____	By:	_____ (Signature in Ink)
Telephone No.:	_____	Printed Name:	_____
		Title:	_____
Facsimile No.:	_____	Address:	_____ (Street or P.O. Box)
			_____ (City, State, Zip)

9. TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING AT THE TIME OF THE BID OPENING:

- Signed Bid, Section 00300 (includes Addenda receipt statement)
- Completed Bid Schedule, Section 00310
- Bid Security (Bid Bond, Section 00320, or by a certified or cashier's check as stipulated in the Notice Inviting Bids, Section 00030)

10. Unless otherwise notified by the Borough Manager, the apparent low Bidder is required to complete and submit the following documents:

- Subcontractor Report, Section 00360

The apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in Section 00360 – Subcontractor Report will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

11. The successful Bidder will be required to submit, within ten Days after the date stated in the "Notice of Intent to Award" letter, the following executed documents:

- Alaska Business License
- Agreement Forms, Section 00500
- Performance Bond, Section 00610
- Payment Bond, Section 00620
- Certificates of Contractor Insurance Section 00700 and Section 00800

12. The successful Bidder will be required to submit, within ten Days after the date stated in the "Notice to Proceed" the following executed documents:

- Certificates of Subcontractor Insurance Section 00700 and Section 00800
- One executed copy of each subcontract for WORK that exceeds one half of one percent of the intended contract award amount.

END OF SECTION

SECTION 00310 - BID SCHEDULE

ETOLIN STREET AND MEDICAL CAMPUS UTILITIES ASSISTANCE BASE BID

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
1505.1	Mobilization	LS	All Reqd				
1570.1	Temporary Erosion and Sediment Control	LS	All Reqd				
2201.1	As-Built Surveys	LS	All Reqd				
2202.1	Clearing and Grubbing	ACRE	2				
2202.2	Unsuitable Excavation Including Haul	CY	17,000				
2202.3	Excavation and Fill	CY	8,500				
2202.4	Excavation and Stockpile	CY	300				
2202.5	Base Course	CY	1,000				
2401.1	4-Inch Force Main	LF	1,670				
2401.2	2-Inch Force Main	LF	550				
2401.3	Lift Station	LS	All Reqd				
2401.4	Gravity Sanitary Sewer	LF	600				
2501.1	Stormdrain	LF	1000				
2601.1	Water Main	LF	1750				
2801.1	Seeding	ACRE	1				
2910.1	Signage and Striping	LS	All Reqd				

TOTAL ETOLIN STREET AND MEDICAL CAMPUS UTILITIES BASE BID AMOUNT IN FIGURES:
$ _____

TOTAL ETOLIN STREET BASE BID AMOUNT
IN WORDS: _____

COMPANY NAME: _____

_____

SECTION 00320 - BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that_____

_____ as Principal, and _____

as Surety, are held and firmly bound unto the **CITY & BOROUGH OF WRANGELL** hereinafter called "OWNER," in the sum of _____dollars, (not less than five percent of the total amount of the Bid) for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the Bid Schedule of the OWNER's Contract Documents entitled

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders" enters into a written Agreement on the form of Agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this _____ day of _____, 20___

(SEAL)_____ (SEAL)_____
(Principal) (Surety)

By:_____ By:_____
(Signature) (Signature)

SECTION 00360 - SUBCONTRACTOR REPORT

LIST OF SUBCONTRACTORS

The apparent low Bidder must submit a list of Subcontractors that the Bidder proposes to use in the performance of this contract by close of business on the fifth calendar day following the posting notice of Bids. If the fifth calendar day falls on a weekend or holiday, the report is due by close of business on the next business day following the weekend or holiday. The list must include each Subcontractor's name, address, location, evidence of valid Alaska Business License, and valid Alaska Contractor's Registration under AS 08.18. ***If no Subcontractors are to be utilized in the performance of the WORK, write in ink or type "NONE" on line (1) below.***

SUBCONTRACTOR ADDRESS	[1] AK Contractor License No. [2] AK Business License No.	[1] Contact Name [2] Phone No.	Type of Work	Contract Amount	✓ if DBE
1.	[1]			$	☐
	[2]				
2.	[1]			$	☐
	[2]				
3.	[1]			$	☐
	[2]				
4.	[1]			$	☐
	[2]				

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

_____

CONTRACTOR, Authorized Signature

_____

CONTRACTOR, Printed Name

A. A Bidder may replace a listed Subcontractor if the Subcontractor:

1. fails to comply with AS 08.18;
2. files for bankruptcy or becomes insolvent;
3. fails to execute a contract with the Bidder involving performance of the WORK for which the Subcontractor was listed and the Bidder acted in good faith;
4. fails to obtain bonding;
5. fails to obtain insurance acceptable to the OWNER;
6. fails to perform the contract with the Bidder involving work for which the Subcontractor was listed;
7. must be substituted in order for the CONTRACTOR to satisfy required state and federal affirmative action requirements;
8. refuses to agree or abide with the Bidder's labor agreement; or
9. is determined by the OWNER not to be a responsible Bidder.

B. If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of WORK, the Bidder shall be considered to have agreed to perform that portion of WORK without the use of a Subcontractor and to have represented the Bidder to be qualified to perform that WORK.

C. A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the WORK required under the contract violates this section.

D. If a contract is awarded to a Bidder who violates this section, the OWNER may:

1. cancel the contract; or
2. after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the subcontract at issue.

E. For contract award, the apparent low Bidder must submit one copy of each subcontract, to the Borough Manager, for WORK with a value of greater than one half of one percent of the intended award amount.

F. An apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in this section will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

END OF SECTION

SECTION 00500 - AGREEMENT

THIS AGREEMENT is between THE CITY & BOROUGH OF WRANGELL (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR) OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1. WORK.

A. CONTRACTOR shall complete the WORK as specified or as indicated under the Bid Schedule of the OWNER's Contract Documents entitled **ETOLIN STREET AND MEDICAL CAMPUS UTILITIES ASSISTANCE.** The WORK is generally described as follows: This project consists of providing various quantities of mobilization, construction surveying, gravel road, storm runoff collection, drainage culvert, water main, subdivision force main system, clinic pump station and force main system, overhead electricity, and other improvements.

ARTICLE 2. CONTRACT COMPLETION TIME.

Completion of Utility WORK May 15, 2012
Substantial completion by June 15, 2012

ARTICLE 3. DATE OF AGREEMENT

The date of this Agreement will be the date of the Borough Manager signature on page three of this section.

ARTICLE 4. LIQUIDATED DAMAGES.

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal preceding the actual damages suffered by the OWNER if the WORK is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER $1,500.00 for each Calendar Day that expires after the completion time specified in Article 2 herein. The amount of liquidated damages specified above is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

ARTICLE 5. CONTRACT PRICE.

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in the amount set forth in the Bid Schedule. The CONTRACTOR agrees to accept as full and complete payment for all WORK to be done in this contract for: **ETOLIN STREET AND AISC UTILITIES** those Unit Price amounts as set forth in the Bid Schedule in the Contract Documents for this Project.

The total amount of this contract shall be_____, except as adjusted in accordance with the provisions of the Contract Documents.

ARTICLE 6. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General

Conditions. Applications for Payment will be processed by the ENGINEER as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 14 of the General Conditions until ninety (90) percent of the Contract Price has been paid. The remaining ten (10) percent of the Contract Price may be retained, in accordance with applicable Alaska State Statutes, until final inspection, completion, and acceptance of the Project by the OWNER.

ARTICLE 7. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-6, inclusive) and the following sections of the Contract Documents:

- Table of Contents
- Notice Inviting Bids
- Instructions to Bidders
- Bid
- Bid Schedule
- Bid Bond
- Subcontractor Report
- Performance Bond
- Payment Bond
- Insurance Certificate(s)
- General
- Supplementary General Conditions
- Alaska Labor Standards, Reporting, and Prevailing Wage Determination
- Permits
- Technical Specifications as listed in the Table of Contents
- PND Drawings consisting of 32 sheets, as listed in the Table of Contents
- R&M Drawings consisting of 28 sheets, as listed in the Table of Contents
- Addenda numbers ___ to ___, inclusive.
- Change Orders which may be delivered or issued after the Date of the Agreement and which are not attached hereto

There are no Contract Documents other than those listed in this Article 7. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.3 of the General Conditions.

ARTICLE 8. MISCELLANEOUS.

Terms used in this Agreement, which are defined in Article 1 of the General Conditions, will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives

to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents. This Agreement shall be governed by the laws of the State of Alaska. Jurisdiction shall be in the State of Alaska, First Judicial District.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed on the date listed below by OWNER.

OWNER:	**CONTRACTOR:**
City & Borough of Wrangell	_____ (Company Name)
_____ (Signature)	_____ (Signature)
By: Timothy Rooney, Borough Manager (Printed Name)	By: _____ (Printed Name, Authority or Title)
Date: _____	Date: _____
OWNER's address for giving notices:	CONTRACTOR's address for giving notices:
P.O. Box 531	_____
Wrangell, Alaska 99929	_____
907-874-2381 907-874-3952 (Telephone) (Fax)	_____ (Telephone) (Fax)
	_____ (E-mail address)
	Contractor License No. _____

CERTIFICATE
(if Corporation)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Board of Directors of the

_____a corporation existing under the laws of

the State of_____, held on _____, 20____, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ President of the Corporation, be and is hereby authorized to **execute the Agreement** with OWNER and this corporation and that the execution thereof, attested by the Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and deed of this Corporation."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Corporation this _____ day of _____, 20____.

_____
Secretary

(SEAL)

CERTIFICATE
(if Partnership)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Partners of the

_____ a partnership existing under the laws of the State

of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the Partnership, be and is hereby authorized to **execute the Agreement** with the OWNER and this partnership and that the execution thereof, attested by the _____shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20_____.

_____
Secretary

(SEAL)

CERTIFICATE
(if Joint Venture)

STATE OF)
) SS:
COUNTY OF)

I HEREBY CERTIFY that a meeting of the Principals of the

_____ a joint venture existing under the laws of the

State of _____, held on _____, 20___, the following resolution was duly passed and adopted:

"RESOLVED, that _____, as _____ of the Joint Venture, be and is hereby authorized to **execute the Agreement** with the OWNER and this joint venture and that the execution thereof, attested by the _____ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this _____, day of _____, 20___.

_____
Secretary

(SEAL)

SECTION 00610 - PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)
of _____, State of _____hereinafter called the "Surety," are held and firmly bound to the CITY & BOROUGH of WRANGELL, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)
for 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, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is _____, a copy of which is hereto attached and made a part hereof for the construction of:

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

NOW, THEREFORE, if the Principal shall truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof, which may be granted by the OWNER, with or without notice to the Surety, and if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, 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 Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By:_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

SURETY:

By: _____ Date Issued:_____
(Signature of Attorney-in-Fact)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, <u>all</u> Partners must execute bond.

SECTION 00620 - PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS: That we _____
(Name of Contractor)
_____ a _____
(Corporation, Partnership, Individual)

hereinafter called "Principal" and _____
(Surety)
of _____, State of _____hereinafter called the "Surety," are held and firmly bound to the CITY & BOROUGH of WRANGELL, ALASKA hereinafter called "OWNER,"
(Owner) (City and State)
for 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, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered into a certain contract with the OWNER, the effective date of which is _____, a copy of which is hereto attached and made a part hereof for the construction of:

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

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 Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

CONTRACTOR:

By:_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

SURETY:

By: _____ Date Issued:_____
(Signature of Attorney-in-Fact)

_____
(Printed Name)

_____
(Company Name)

_____
(Street or P.0. Box)

_____
(City, State, Zip Code)

(Affix SURETY'S SEAL)

NOTE: If CONTRACTOR is Partnership, <u>all</u> Partners must execute bond.

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SECTION 00700 - GENERAL CONDITIONS

ARTICLE 1 DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof. Where an entire word is capitalized in the definitions and is found not capitalized in the Contract Documents it has the ordinary dictionary definition.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form furnished by the ENGINEER which is to be used by the CONTRACTOR to request progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform its contract.

Project Manager - The authorized representative of the City of Wrangell, as OWNER, who is responsible for administration of the contract.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive calendar days stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture or other legal entity with whom the OWNER has executed the Agreement.

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective WORK - WORK that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or WORK that has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings - The Drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the ENGINEER and are referred to in the Contract Documents. Shop Drawings are not within the meaning of this paragraph.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Engineer of Record - The individual, partnership, corporation, joint-venture or other legal entity named as such in the Contract Documents.

ENGINEER - The ENGINEER is the firm or person(s) selected by the OWNER to perform the duties of project inspection and management. Wrangell will inform the CONTRACTOR of the identity of the ENGINEER at or before the Notice to Proceed.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

General Requirements - Division 1 of the Technical Specifications.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

Holidays - Legal holidays occur on:

1. New Year's Day - January 1
2. Martin Luther King's Birthday - Third Monday in January
3. President's Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
10. Thanksgiving Day - Fourth Thursday and the following Friday in November
11. Christmas Day – December 25

If any holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal holidays. If the holiday should fall on a Sunday, Sunday and the following Monday are both legal holidays.

Inspector - The authorized representative of the ENGINEER assigned to make detailed inspections for conformance to the Contract Documents. Any reference to the Resident Project Representative in this document shall mean the Inspector.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When referred to in these Contract Documents, "Mechanic's Lien" or "lien" means "Stop Notice".

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a portion of the WORK, or a period of time within which the portion of the WORK should be performed prior to Substantial Completion of all the WORK.

Notice of Intent to Award - The written notice by the OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the requirements listed therein, within the time specified, the OWNER will enter into an Agreement.

Notice of Award - The written notice by the OWNER to the apparent successful bidder stating that the apparent successful bidder has complied with all conditions for award of the contract.

Notice of Completion - A form signed by the ENGINEER and the CONTRACTOR recommending to the OWNER that the WORK is Substantially Complete and fixing the date of Substantial Completion. After acceptance of the WORK by the OWNER's governing body, the form is signed by the OWNER and filed with the County Recorder. This filing starts the 30 day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the OWNER to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK and establishing the date of commencement of the Contract Time.

OWNER - The City of Wrangell, acting through its legally designated officials, officers, or employees.

Partial Utilization - Use by the OWNER or a substantially completed part of the WORK for the purpose for which it is intended prior to Substantial Completion of all the WORK.

PCB's - Polychlorinated biphenyls.

PERMITTEE – CONTRACTOR.

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

Project - The total construction of which the WORK to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

Shop Drawings - All Drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR, to the ENGINEER, to illustrate some portion of WORK.

Specifications - (Same definition as for Technical Specifications hereinafter).

Stop Notice - A legal remedy for Subcontractors and suppliers who contribute to public works, but who are not paid for their WORK, which secures payment from construction funds possessed by the OWNER. For public property, the Stop Notice remedy is designed to substitute for mechanic's lien rights.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with ENGINEER, or with any of its Consultants to furnish services with respect to the Project.

Subcontractor - An individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the CONTRACTOR, or with any of its Subcontractors, for the performance of a part of the WORK at the site.

Substantial Completion - Refers to when the WORK has progressed to the point where, in the opinion of the ENGINEER as evidenced by Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended; or if no such notice is issued, when final payment is due in accordance with Paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any WORK refer to substantial completion thereof.

Supplementary General Conditions (SGC) - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Specifications - Divisions 1 through 16 of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing, or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

ARTICLE 2 PRELIMINARY MATTERS

2.1 DELIVERY OF BONDS/INSURANCE CERTIFICATES. When the CONTRACTOR delivers the signed Agreements to the OWNER, the CONTRACTOR shall also deliver to the OWNER such Bonds and Insurance Policies and Certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.

2.2 COPIES OF DOCUMENTS. The OWNER shall furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.

2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED. The Contract Time will start to run on the commencement date stated in the Notice to Proceed.

2.4 STARTING THE WORK

A. The CONTRACTOR shall begin to perform the WORK within 10 days after the commencement date stated in the Notice to Proceed, but no WORK shall be done at the site prior to said commencement date.

B. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any WORK affected thereby.

C. The CONTRACTOR shall submit to the ENGINEER for review those documents called for under Section 01300 - CONTRACTOR Submittals in the General Requirements.

2.5 PRE-CONSTRUCTION CONFERENCE. The CONTRACTOR is required to attend a Pre-Construction Conference. This conference will be attended by the ENGINEER and others as appropriate in order to discuss the WORK in accordance with the applicable procedures specified in the General Requirements, Section 01010 - Summary of WORK in the General Requirements.

ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 INTENT

A. The Contract Documents comprise the entire Agreement between the OWNER and the CONTRACTOR concerning the WORK. The Contract Documents shall be construed as a whole in accordance with Alaska Law.

B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment such words or phrases shall be interpreted in accordance with that meaning, unless a definition has been provided in Article 1 of the General Conditions. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.

C. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, the CONTRACTOR shall report it to the ENGINEER in writing at once, and the CONTRACTOR shall not proceed with the WORK affected thereby (except in an emergency as authorized by the ENGINEER) until a clarification field order, or Change Order to the Contract Documents has been issued.

3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

A. In resolving conflicts resulting from, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:

1. Permits from other agencies as may be required by law, excepting the definition of "PERMITEE" in these permits.
2. Field Orders
3. Change Orders
4. ENGINEER's written interpretations and clarifications.
5. Agreement
6. Addenda
7. CONTRACTOR's Bid (Bid Form)
8. Supplementary General Conditions
9. Notice Inviting Bids
10. Instructions to Bidders
11. General Conditions
12. Technical Specifications
13. Drawings

B. With reference to the Drawings the order of precedence is as follows:

1. Figures govern over scaled dimensions
2. Detail Drawings govern over general Drawings
3. Addenda/ Change Order drawings govern over Contract Drawings
4. Contract Drawings govern over standard drawings

3.3 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10 CHANGES IN THE WORK).

3.4 REUSE OF DOCUMENTS. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent of the OWNER.

ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 AVAILABILITY OF LANDS. The OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement, lease or other appropriate agreement has been executed by the CONTRACTOR and the property owner, and a copy of said agreement furnished to the ENGINEER prior to said use; and, neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.

4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES

A. Explorations and Reports. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those reports of explorations and tests of sub-surface conditions at the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, however, reports are not to be considered complete or comprehensive and nontechnical data, interpretations, and opinions contained in such reports shall be verified by the CONTRACTOR prior to bid. The CONTRACTOR is responsible for any further explorations or tests that may be necessary and any interpretation, interpolation, or extrapolation that it makes of any information shown in such reports.

B. Existing Structures. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.4 herein) which are at or contiguous to the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, however, nontechnical data, interpretations, and opinions contained in such drawings shall be verified by the CONTRACTOR prior to bid. The CONTRACTOR is also responsible for any interpretation, interpolation, or extrapolation that it makes of any information shown in such drawings.

4.3 DIFFERING SITE CONDITIONS

A. The CONTRACTOR shall promptly upon discovery (but in no event later than 14 days thereafter) and before the following conditions are disturbed, notify the ENGINEER, in writing of any:

1. Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Article 1 of these General Conditions, or asbestos, PCB's, petroleum or any other substance or material posing a threat to human or to the environment.
2. Subsurface or latent physical conditions at the site differing from those indicated.

3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the contract.

B. The OWNER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK shall issue a Change Order under the procedures described in the contract.

C. In the event that a dispute arises between the OWNER and the CONTRACTOR whether the conditions materially differ, or involved hazardous waste or other materials listed above, or cause a decrease or increase in the CONTRACTOR's cost of, or time required for, performance of any part of the WORK, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all WORK to be performed under the contract. The CONTRACTOR shall retain any and all rights provided either by contract or by Law which pertain to the resolution of disputes and protests between the contracting parties.

4.4 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

A. Indicated. The information and data indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the ENGINEER by the owners of such Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements, the OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such Underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of which will be considered as having been included in the Contract Price.

B. Not Indicated. If an Underground Utility is uncovered or revealed at or contiguous to the site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such Underground Utility and give written notice thereof to that owner and shall notify the ENGINEER in accordance with the requirements of the Supplementary General Conditions and Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

4.5 REFERENCE POINTS

A. The ENGINEER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR for alignment control. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.

B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its Subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by personnel qualified under the Alaska Statute governing the licensing of Architects, Engineers, and Land Surveyors.

ARTICLE 5 BONDS AND INSURANCE

5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS

A. The CONTRACTOR shall furnish, when required, Performance and Payment Bonds on forms provided by the OWNER for the penal sums of 100% of the amount of the Bid award. The surety on each bond may be any corporation or partnership authorized to do business in the State of Alaska as an insurer under AS 21.09. These bonds shall remain in effect for 12 months after the date of final payment and until all obligations and liens under this contract have been satisfied. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

B. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and Surety, which must be acceptable to the OWNER.

C. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Alaska to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions. The City Manager may, on behalf of the OWNER, notify the surety of any potential default or liability.

5.2 INSURANCE

A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. Such insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever are greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing Defective WORK in accordance with Paragraph 13.6, but the CONTRACTOR's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.

B. All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed or

authorized in the State of Alaska to issue insurance policies for the limits and coverages so required. Such insurance companies shall have a current Best's Rating of at least an "A" (Excellent) general policy holder's rating and a Class VII financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

6.1 SUPERVISION AND SUPERINTENDENCE

A. The CONTRACTOR shall supervise, inspect, and direct the WORK competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.

B. The CONTRACTOR shall designate in writing and keep on the WORK site at all times during its progress a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the OWNER and the ENGINEER. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER and the ENGINEER only.

C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while WORK is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the site.

6.2 LABOR, MATERIALS, AND EQUIPMENT

A. The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and any temporary works as may be required. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the WORK or property at the site or adjacent thereto, and except as otherwise indicated in
the Contract Documents, all WORK at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday, or any legal holiday without the OWNER's written consent. The CONTRACTOR shall apply for this consent through the ENGINEER.

B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in

writing. Additional compensation will be paid the CONTRACTOR for overtime work only in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.

C. All costs of inspection and testing performed during overtime work by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.

D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.

E. All materials and equipment to be incorporated into the WORK shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the OWNER. If required by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the ENGINEER, or any of the ENGINEER consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.9C and 9.9D.

F. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of WORK to full completion in the manner and time set forth in and required by these specifications. All workers shall have sufficient skill and experience to perform property the WORK assigned to them. Workers engaged in special WORK, or skilled WORK, shall have sufficient experience in such WORK and in the operation of the equipment required to perform all WORK, properly and satisfactorily.

G. Any person employed by the CONTRACTOR or by any Subcontractor who, in the opinion of the ENGINEER, does not perform the WORK in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the ENGINEER, be removed forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the WORK without the approval of the ENGINEER. Should the CONTRACTOR fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the WORK, the ENGINEER may suspend the WORK by written notice until such orders are complied with.

6.3 ADJUSTING PROGRESS SCHEDULE. The CONTRACTOR shall submit monthly updates of the progress schedule to the ENGINEER for acceptance in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.

6.4 SUBSTITUTES OR "OR-EQUAL" ITEMS. The CONTRACTOR shall submit proposed substitutes or "or-equal" items in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.

6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS.

A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its Subcontractors and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any Subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the prime contract.

B. The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the awarded contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for contract award, and any other information requested by the OWNER from the apparent low bidder.

6.6 PERMITS

A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids. The CONTRACTOR shall pay all charges of utility owners for connections to the WORK.

B. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in this Section. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the "permittee" in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.

C. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in Section 00700, Article 6.6 - PERMITS. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the

Contract Documents. Any reference to the "permittee" in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.

D. The OWNER shall apply for, and obtain, the necessary building permit for this project, however, the CONTRACTOR is responsible for scheduling and coordinating all necessary inspections. All other provisions of this Section remain in effect.

6.7 PATENT FEES AND ROYALTIES. The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the WORK or the incorporation in the WORK of any invention, design, process, product, software or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

6.8 LAWS AND REGULATIONS. The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in this contract in relation to any such law, ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the ENGINEER. The CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors, or third parties. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.

The OWNER may, per AS 36.30, audit the CONTRACTOR's or Subcontractor(s) records that are related to the cost or pricing data for this contract, all related Change Orders, and/or contract modifications.

6.9 TAXES. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.

6.10 USE OF PREMISES. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits, leases and easements. The

CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the OWNER or the ENGINEER by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the OWNER, the ENGINEER, their Consultants, Sub-consultants, and the officers, directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK.

6.11 SAFETY AND PROTECTION

A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all employees on the WORK and other persons and organizations who may be affected thereby;
2. all the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

B. The CONTRACTOR shall comply with all applicable Laws and Regulations whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. The CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and program.

D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet shall be requested by the CONTRACTOR from the manufacturer of any hazardous product used.

E. Material usage shall be accomplished with strict adherence to all safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.

F. The CONTRACTOR shall be responsible for coordinating communications on any exchange of Material Safety Data Sheets or other hazardous material information that is

required to be made available to, or exchanged between, or among, employers at the site in accordance with Laws or Regulations.

G. The CONTRACTOR shall notify the ENGINEER if it considers a specified product or its intended usage to be unsafe. This notification must be given to the ENGINEER prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

6.12 SHOP DRAWINGS AND SAMPLES

A. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the ENGINEER for review, all Shop Drawings in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.

B. The CONTRACTOR shall also submit to the ENGINEER for review all samples in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.

C. Before submittal of each shop drawing or sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the WORK and the Contract Documents.

6.13 CONTINUING THE WORK. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the OWNER may otherwise agree in writing.

6.14 INDEMNIFICATION

A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, their Consultants, Sub-consultants and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising under, by reason of or incidentally to the contract or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER, and the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, agents, or third parties;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR’s or Subcontractor’s own employees engaged in the WORK resulting in actions brought by or on behalf of such employees against the OWNER, and the ENGINEER;

3. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR, its employees, or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its employees, or agents in the performance of this contract of any copyrighted or non-copyrighted composition, secret process, patented or non-patented invention, computer software, article, or appliance, unless otherwise specifically stipulated in this contract.
5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the OWNER or any other parties by the CONTRACTOR, its employees, or agents;
6. Liabilities or claims arising directly or indirectly from the willful or criminal misconduct of the CONTRACTOR, its employees, or agents; and,
7. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.

B. The CONTRACTOR shall reimburse the ENGINEER and the OWNER for all costs and expenses, (including but not limited to fees and charges of engineers, attorneys, and other professionals and court costs including all costs of appeals) incurred by said OWNER, and the ENGINEER in enforcing the provisions of this Paragraph 6.14.

C. The indemnification obligation under this Paragraph 6.14 shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.15 CONTRACTOR'S DAILY REPORTS. The CONTRACTOR shall complete a daily report indicating total manpower for each construction trade, major equipment on site, each Subcontractor's manpower, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms provided by the ENGINEER and shall be submitted to the ENGINEER at the conclusion of each work day. The report should comment on the daily progress and status of the WORK within each major component of the WORK. These components will be decided by the ENGINEER.

6.16 ASSIGNMENT OF CONTRACT. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the contract or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the contract may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.

6.17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES. It is understood that any turn-on or turn-off, line locates and any other work or assistance necessary by the OWNER, will be at the CONTRACTOR's expense unless otherwise stated in the bid documents. All cost must be agreed to prior to any related actions, and will be considered incidental to the project cost. Billing to the CONTRACTOR will be direct from the OWNER.

6.18 OPERATING WATER SYSTEM VALVES

A. The CONTRACTOR shall submit a written request, to the ENGINEER, for approval to operate any valve on any in-service section of the City water system. The request must be

submitted at least 24-hours prior to operating any valves. The request shall specifically identify each valve to be operated, the time of operation, and the operation to be performed. The CONTRACTOR shall obtain the written approval of the ENGINEER for any scheduled operation before operating any valve.

B. The CONTRACTOR shall be responsible for all damages, both direct and consequential, to the OWNER or any other party, caused by unauthorized operation of any valve of the City water system.

6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS. Construction of Buildings and Projects. It is unlawful to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 a.m. or after 10:00 p.m., Monday through Saturday, or before 9:00 a.m. or after 10:00 p.m., Sunday, unless a permit shall first be obtained from the OWNER. Such permit shall be issued by the OWNER only upon a determination that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents.

ARTICLE 7 OTHER WORK

7.1 RELATED WORK AT SITE

A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts therefor which may contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.

B. The CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the WORK with theirs. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.

C. If the proper execution or results of any part of the CONTRACTOR's WORK depends upon the work of any such other contractor or utility owner (or OWNER), the CONTRACTOR shall inspect and report to the ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's WORK except for latent or nonapparent defects and deficiencies in the other work.

7.2 COORDINATION. If the OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and

responsibility will be itemized and the extent of such authority and responsibilities will be provided in the Supplementary General Conditions.

ARTICLE 8 OWNER'S RESPONSIBILITIES

8.1 COMMUNICATIONS

A. The OWNER shall issue all its communications to the CONTRACTOR through the ENGINEER.

B. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER.

8.2 PAYMENTS. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.5, 14.8, 14.9 and 14.10.

8.3 LANDS, EASEMENTS, AND SURVEYS. The OWNER's duties in respect of providing lands and easements and providing surveys to establish reference points are set forth in Paragraphs 4.1 and 4.5.

8.4 CHANGE ORDERS. The OWNER shall execute Change Orders as indicated in Paragraph 10.1F.

8.5 INSPECTIONS AND TESTS. The OWNER's responsibility in respect of inspections, tests, and approvals is set forth in Paragraph 13.3.

8.6 SUSPENSION OF WORK. In connection with the OWNER's right to stop WORK or suspend WORK, see Paragraphs 13.4 and 15.1.

8.7 TERMINATION OF AGREEMENT. Paragraphs 15.2 and 15.3 deal with the OWNER's right to terminate services of the CONTRACTOR.

ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION

9.1 OWNER'S REPRESENTATIVE. The ENGINEER will be the OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in the Contract Documents.

9.2 VISITS TO SITE. The ENGINEER will make visits to the site during construction to observe the progress and quality of the WORK and to determine, in general, if the WORK is proceeding in accordance with the Contract Documents. Exhaustive or continuous on-site inspections to check the quality or quantity of the WORK will not be required of the ENGINEER. The ENGINEER will not, during such visits, or as a result of such observations of the CONTRACTOR's WORK in progress, supervise, direct, or have control over the CONTRACTOR's WORK.

9.3 PROJECT REPRESENTATION. The ENGINEER may furnish an Inspector to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority are as follows:

A. Duties, Responsibilities and Limitations of Authority of Inspector

General. The Inspector, who is the ENGINEER's Agent, will act as directed by and under the supervision of the ENGINEER and will confer with the ENGINEER regarding its actions. The Inspector's dealings in matters pertaining to the on-site WORK shall, in general, be only with the ENGINEER and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR. Written communication with the OWNER will be only through or as directed by the ENGINEER.

Duties and Responsibilities. The Inspector will:

1. Review the progress schedule, list of Shop Drawing submittals and schedule of values prepared by the CONTRACTOR and consult with the ENGINEER concerning their acceptability.
2. Attend pre-construction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with the ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
3. Serve as the ENGINEER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent and assist said superintendent in understanding the intent of the Contract Documents. Assist the ENGINEER in serving as the OWNER's liaison with the CONTRACTOR when the CONTRACTOR's operations affect the OWNER's on-site operations.
4. As requested by the ENGINEER, assist in obtaining from the OWNER additional details or information, when required at the site for proper execution of the WORK.
5. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by the CONTRACTOR and notify the ENGINEER of their availability for examination.
6. Conduct on-site observations of the WORK in progress to assist the ENGINEER in determining if the WORK is proceeding in accordance with the Contract Documents.
7. Report to the ENGINEER whenever the Inspector believes that any WORK is unsatisfactory, faulty, or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspection, tests or approval required to be made or has been damaged prior to final payment; and advise the ENGINEER when the Inspector believes WORK should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
8. Verify that the tests, equipment, and systems startups and operating and maintenance instruction are conducted as required by the Contract Documents and in presence of the required personnel, and that the CONTRACTOR maintains adequate records thereof; observe, record and report to the ENGINEER appropriate details relative to the test procedures and start-ups.
9. Accompany visiting inspectors representing public or other agencies having jurisdiction over the WORK, record the outcome of these inspections, and report to the ENGINEER.
10. Transmit to the CONTRACTOR the ENGINEER's clarifications and interpretations of the Contract Documents.
11. Consider and evaluate the CONTRACTOR's suggestions for modifications in the Contract Documents and report them with recommendations to the ENGINEER.
12. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and sample submittals, reproductions of original Contract Documents including all addenda, Change Orders, field orders, additional

Drawings issued subsequent to the execution of the contract, the ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other related documents.

13. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list all project visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of performing and observing test procedures. Send copies to the ENGINEER.
14. Record names, addresses, and telephone numbers of the CONTRACTOR, Subcontractors, and major suppliers of materials and equipment.
15. Furnish the ENGINEER with periodic reports as required of progress of the WORK and the CONTRACTOR's compliance with the accepted progress schedule and schedule of CONTRACTOR submittals.
16. Consult with the ENGINEER in advance of scheduled major tests, inspections, or start of important phases of the WORK.
17. Report immediately to the ENGINEER upon the occurrence of any accident.
18. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submittal and forward them with recommendations to the ENGINEER, noting particularly their relation to the schedule of values, WORK completed, and materials and equipment delivered at the site but not incorporated in the WORK.
19. During the course of the WORK, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed; and deliver this material to the ENGINEER for its review and forwarding to the OWNER prior to final acceptance of the WORK.
20. Before the ENGINEER prepares a Certificate of Substantial Completion/Notice of completion, as applicable, review the CONTRACTOR's punch list items requiring completion or correction and add any items that CONTRACTOR has omitted.
21. Conduct final inspection in the company of the ENGINEER, the OWNER, and the CONTRACTOR, and prepare a final punch list of items to be completed or corrected.
22. Verify that all items on the punch list have been completed or corrected and make recommendations to the ENGINEER concerning acceptance.

Limitations of Authority. Except upon written instruction of the ENGINEER, the Inspector:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute material or equipment.
2. Shall not exceed limitations on the ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of the CONTRACTOR, Subcontractors or CONTRACTOR's superintendent, or expedite the WORK.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences, or procedures of construction unless such is specifically called for in the Contract Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the WORK.

9.4 CLARIFICATIONS AND INTERPRETATIONS. The ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract

Documents (in the form of Drawings or otherwise) as the ENGINEER may determine necessary, which shall be consistent with, or reasonably inferred from, the overall intent of the Contract Documents.

9.5 AUTHORIZED VARIATIONS IN WORK. The ENGINEER may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the contract completion date. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

9.6 REJECTING DEFECTIVE WORK. The ENGINEER will have authority to reject WORK which the ENGINEER believes to be defective and will also have authority to require special inspection or testing of the WORK as provided in Paragraph 13.3G, whether or not the WORK is fabricated, installed, or completed.

9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

A. In accordance with the procedures set forth in the General Requirements, the ENGINEER will review all CONTRACTOR submittals, including Shop Drawings, samples, substitutes, or “or equal” items, etc., in order to determine if the items covered by the submittals will, after installation or incorporation in the WORK, conform to the requirements of the Contract Documents and be compatible with the design concept of the completed project as a functioning whole as indicated by the Contract Documents. The ENGINEER’s review will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto.

B. In connection with the ENGINEER’s responsibilities as to Change Orders, see Articles 10, 11, and 12.

C. In connection with the ENGINEER’s responsibilities in respect of Applications for Payment, see Article 14.

9.8 DECISIONS ON DISPUTES

A. The ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK; the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK; and those claims under Articles 11 and 12 in respect to changes in the Contract Price or Contract Time will be referred initially to the ENGINEER in writing with a request for formal decision in accordance with this paragraph, which the ENGINEER will render in writing within 30 days of receipt of the request. Written notice of each such claim, dispute, and other matter will be delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise thereto. Written supporting data will be submitted to the ENGINEER within 60 days after such occurrence unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

B. The rendering of a decision by the ENGINEER with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final

payment as provided in Paragraph 14.12) will be a condition precedent to any exercise by the OWNER or the CONTRACTOR) of such rights or remedies as either may otherwise have under the Contract Documents or by Law or Regulations in respect of any such claim, dispute, or other matter.

9.9 LIMITATION ON ENGINEER'S RESPONSIBILITIES

A. Neither the ENGINEER's authority to act under this Article or other provisions of the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.

B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the ENGINEER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ENGINEER any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9C or 9.9D.

C. The ENGINEER will not supervise, direct, control, or have authority over or be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the CONTRACTOR to comply with Laws and Regulations, applicable to the performance of the WORK. The ENGINEER will not be responsible for the CONTRACTOR's failure to perform the WORK in accordance with the Contract Documents.

D. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, supplier, or any other person or organization performing any of the WORK.

ARTICLE 10 CHANGES IN THE WORK

10.1 GENERAL

A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ENGINEER.

B. If the CONTRACTOR believes that it is entitled to an increase or decrease in the Contract Price, or an extension or shortening in the Contract Time as the result of a Field Order, a claim may be made as provided in Articles 11 and 12.

C. If the OWNER and CONTRACTOR agree on the value of any work, or the amount of Contract Time that should be allowed as a result of a Field Order, upon receiving written notice from the ENGINEER, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the work pending the issuance of a Change Order.

D. If the OWNER and the CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Field Order, the ENGINEER can direct the CONTRACTOR to proceed on the basis of Time and Materials so as to minimize the impact on and delays to WORK, and a claim may be made therefor as provided in Articles 11 and 12.

E. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Paragraph 13.3G.

F. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:

1. changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.1A;
2. changes required because of acceptance of Defective WORK under Paragraph 13.7;
3. changes in the Contract Price or Contract Time which are agreed to by the parties; or
4. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by the ENGINEER pursuant to Paragraph 9.8.

G. If notice of any change is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

10.2 ALLOWABLE QUANTITY VARIATIONS

A. In the event of an increase or decrease in Bid item quantity of a unit price contract, the total amount of WORK actually done or materials or equipment furnished shall be paid for according to the unit price established for such WORK under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25% of the estimated quantity of any major item of the WORK. Major Item is defined as any bid item amount that is ten percent (10%) or more of the total contract amount.

B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, said price shall be determined in accordance with the provisions of Article 11.

ARTICLE 11 CHANGE OF CONTRACT PRICE

11.1 GENERAL

A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.

B. The Contract Price may only be changed by a Change Order approved by the Borough Assembly. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 7 days) after the start of the occurrence or the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 14 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by the ENGINEER in accordance with Paragraph 9.8A if the OWNER and the CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1B.

C. The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4.
3. On the basis of the cost of work (determined as provided in Paragraphs 11.3) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.4).

11.2 COSTS RELATING TO WEATHER. The CONTRACTOR shall have no claims against the OWNER for damages for any injury to WORK, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ENGINEER, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment and work, the CONTRACTOR may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of the work, materials, or equipment.

11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

A. General. The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.5 EXCLUDED COSTS.

B. Labor. The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra work at the time the extra work is done, plus employer payments of payroll taxes, worker's compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental. The labor costs for forepersons shall be proportioned to all of their assigned work and only that applicable to extra work shall be paid. Non-direct labor costs including superintendence shall be considered part of the mark-up set out in paragraph 11.4.

C. Materials. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:

1. Trade discounts available to the purchaser shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.
2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the work site, whichever price is lower.
4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be allowed by the CONTRACTOR for costs and profit on such materials.

D. Equipment. The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the Supplementary General Conditions. Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the OWNER for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the publication specified in the Supplementary General Conditions, an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishment of the rental rate.

1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used.
2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous

location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number.

3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
4. Individual pieces of equipment or tools having a replacement value of $200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.
5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
6. Equipment Rental Rates. Unless otherwise agreed in writing, the CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication: "Rental Rate Blue Book" as published by Dataquest (a company of the Dunn and Bradstreet Corporation), 1290 Ridder Park Drive, San Jose, CA 95131, telephone number (800) 227-8444.

E. Equipment on the Work Site. The rental time to be paid for equipment on the work site shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the site of the extra work on other than the extra work. The following shall be used in computing the rental time of equipment on the work site.

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs (3), (4), and (5), following.
3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3D, herein.
4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the work site, or in the absence of such labor, established by collective bargaining agreements for the type of worker and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.3B, herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages.
5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.

F. Specialty Work. Specialty work is defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following shall apply in making estimates for payment for specialty work:

1. Any bid item of WORK to be classified as Specialty Work shall be listed as such in the Supplementary General Conditions. Specialty work shall be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ENGINEER, invoices for specialty work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.
2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may, by agreement, be accepted as specialty work and accordingly, the invoices for the work may be accepted without detailed itemization.
3. All invoices for specialty work will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.4, herein, an allowance of 5 percent will be added to invoices for specialty work.

G. Sureties. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

11.4 CONTRACTOR'S FEE

A. Extra work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Overhead and Profit Allowance	
Labor	15 percent
Materials	10 percent
Equipment	10 percent

To the sum of the costs and mark-ups provided for in this Article, one percent shall be added as compensation for bonding.

B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra work is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add 5 percent of the Subcontractor's total cost for the

extra work. Regardless of the number of hierarchical tiers of Subcontractors, the 5 percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

11.5 EXCLUDED COSTS. The term Cost of the Work shall not include any of the following:

A. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, estimators, attorneys' auditors, accountants, purchasing and contracting agents, expenditures, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the work, or not specifically covered by paragraph 11.3, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

B. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

C. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

D. Cost of premiums for all bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by paragraph 11.4 above).

E. Costs due to the negligence of CONTRACTOR , any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective WORK, disposal of materials or equipment wrongly supplied and making good any damage to property.

F. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in paragraph 11.4.

ARTICLE 12 CHANGE OF CONTRACT TIME

12.1 GENERAL

A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract Time (or Milestones) shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR'S written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ENGINEER in accordance with Paragraph 9.8 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this Paragraph 12.1A. An increase in Contract Time does not mean that the Contractor is due an increase

in Contract Price. Only Compensable time extensions will result in an increase in Contract Price.

B. All time limits stated in the Contract Documents are of the essence of the Agreement. OWNER reserves the right to direct CONTRACTOR to accelerate his work, at no cost to OWNER, if CONTRACTOR fails to maintain contract schedule.

C. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the project due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, unprecedented weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

D. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the project due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall the OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

12.2 EXTENSIONS OF TIME FOR DELAY DUE TO WEATHER. Contract Time may be extended by the ENGINEER because of delays in completion of the WORK due to unusually severe weather, provided that the CONTRACTOR shall, within 10 days of the beginning of any such delay, notify the ENGINEER in writing of the cause of delay and request an extension of Contract Time. The ENGINEER will ascertain the facts and the extent of the delay and extend the time for completing the work when, in the ENGINEER's judgment, the findings of fact justify such an extension. Unprecedented, abnormal, or unusually severe weather will be defined as an event, or events, with a greater than 50-year recurrence interval, as determined by the National Weather Service, or equivalent State or Federal agency

ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

13.1 WARRANTY AND GUARANTEE. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work will be in accordance with the Contract Documents and will not be defective. Prompt notice of defects known to the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

13.2 ACCESS TO WORK. OWNER, ENGINEER, their Consultants, sub-consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.3 TESTS AND INSPECTIONS

A. The CONTRACTOR shall give the ENGINEER timely notice of readiness of the WORK for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If Laws or Regulations of any public body having jurisdiction other than the OWNER require any WORK to specifically be inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ENGINEER's acceptance of a Supplier of materials or equipment proposed as a substitution or (or-equal) to be incorporated in the WORK, or of materials or equipment submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).

C. The ENGINEER will make, or have made, such inspections and tests as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost of such inspection and testing will be borne by the OWNER. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent reinspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the ENGINEER and the CONTRACTOR.

E. If any work (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ENGINEER timely notice of the CONTRACTOR's intention to perform such test or to cover the same and the ENGINEER has not acted with reasonable promptness in response to such notice.

F. If any WORK is covered contrary to the written request of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER's observation and recovered at the CONTRACTOR's expense.

G. If the ENGINEER considers it necessary or advisable that covered WORK be observed by the ENGINEER or inspected or tested by others, the CONTRACTOR, at the ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, material, and equipment. If it is found that such work is defective, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of engineers, attorneys, and other professionals. However, if such work is not found to be defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

13.4 OWNER MAY STOP THE WORK. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause for such order has been eliminated; however, this right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK. If required by the ENGINEER, the CONTRACTOR shall promptly, either correct all defective work, whether or not fabricated, installed, or completed, or, if the WORK has been rejected by the ENGINEER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal, including but not limited to fees and charges of engineers, attorneys, and other professionals made necessary thereby.

13.6 ONE YEAR CORRECTION PERIOD

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with OWNER's written notification, (i) correct such Defective WORK, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work, and (ii) satisfactorily correct or remove and replace any damage to other work of others resulting therefrom. If the CONTRACTOR does not promptly comply with such notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective WORK corrected or the rejected WORK removed and replaced, and all direct, indirect, and consequential costs and damages of such removal and replacement including but not limited to fees and charges of engineers, attorneys and other professionals will be paid by the CONTRACTOR.

B. Where Defective WORK (and damage to other WORK resulting therefrom) has been corrected, removed or replaced under this paragraph 13.6, the correction period hereunder with respect to such WORK will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

13.7 ACCEPTANCE OF DEFECTIVE WORK. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the WORK, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept such defective work. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN). The schedule of values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the ENGINEER.

14.2 UNIT PRICE BID SCHEDULE. Progress payments on account of Unit Price work will be based on the number of units completed.

14.3 APPLICATION FOR PROGRESS PAYMENT

A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review, an Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR'S Total Earnings to Date, plus the Value of Materials Stored at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions for payment for Materials Stored at the Site, but not yet incorporated in the WORK.

C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the Contract Price has been paid. The remaining 10% of the Contract Price amount may be withheld until:

1. final inspection has been made;
2. completion of the project; and
3. acceptance of the project by the OWNER.

D. The Value of Materials Stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in the Supplementary General Conditions. Said amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the site or at another location agreed to in writing; provided, each such individual item has a value of more than $5,000.00 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by an invoice (including shipping), a certification that the materials meet the applicable contract specifications, and any

evidence required by the OWNER that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER. Payment for materials will not constitute final acceptance. It shall be the CONTRACTOR's responsibility to protect the material from damage, theft, loss, or peril while in storage. Unless otherwise prescribed by law, the Value of Materials Stored at the Site shall be paid at the invoice amount up to a maximum of 85% of the Contract Price for those items.

14.4 CONTRACTOR'S WARRANTY OF TITLE. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of payment free and clear of all liens.

14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the OWNER, or return the Application to the CONTRACTOR indicating in writing the ENGINEER's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application, at which point the 7 days for ENGINEER review will begin again. If the ENGINEER still disagrees with a portion of the Application, it will submit the Application recommending the undisputed portion of the Application to the OWNER for payment and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ENGINEER's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B) become due and when due will be paid by the OWNER to the CONTRACTOR.

B. The OWNER may refuse to make payment of the full amount recommended by the ENGINEER because claims have been made against the OWNER on account of the CONTRACTOR's performance of the WORK or Liens have been filed in connection with the WORK or there are other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days (with a copy to the ENGINEER) stating the reasons for such action.

14.6 PARTIAL UTILIZATION

A. The OWNER shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the OWNER plans to exercise said right, the CONTRACTOR will be notified in writing by the OWNER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.

B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.

C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the

OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Substantial Completion for the WORK.

14.7 SUBSTANTIAL COMPLETION. When the CONTRACTOR considers the WORK ready for its intended use the CONTRACTOR shall notify the OWNER and the ENGINEER in writing that the WORK is substantially complete. The CONTRACTOR will attach to this request a list of all work items that remain to be completed and a request that the ENGINEER prepare a Notice of Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER does not consider the WORK substantially complete, or the list of remaining work items to be comprehensive, the ENGINEER will notify the CONTRACTOR in writing giving the reasons therefor. If the ENGINEER considers the WORK substantially complete, the ENGINEER will prepare and deliver to the OWNER, for its execution and recording, the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of Substantial Completion.

14.8 FINAL APPLICATION FOR PAYMENT. After the CONTRACTOR has completed all of the remaining work items referred to in Paragraph 14.7 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, contract releases, record as-built documents (as provided in the General Requirements) and other documents, all as required by the Contract Documents, and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the OWNER) of all liens arising out of or filed in connection with the WORK.

14.9 FINAL PAYMENT AND ACCEPTANCE

A. If, on the basis of the ENGINEER's observation of the WORK during construction and final inspection, and the ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the WORK has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will, within 14 days after receipt of the final Application for Payment, indicate in writing the ENGINEER's recommendation of payment and present the Application to the OWNER for payment.

B. After acceptance of the WORK by the OWNER's governing body, the OWNER will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:

1. Liquidated damages, as applicable.
2. Two times the value of outstanding items of correction work or punch list items yet uncompleted or uncorrected, as applicable. All such work shall be completed or corrected to the satisfaction of the OWNER within the time stated on the Notice of Completion, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the OWNER to cover the value of all such uncompleted or uncorrected items.

14.10 RELEASE OF RETAINAGE AND OTHER DEDUCTIONS

A. After executing the necessary documents to initiate the lien period, and not more than 45 days thereafter (based on a 30-day lien filing period and 15-day processing time), the OWNER will release to the CONTRACTOR the retainage funds withheld pursuant to the Agreement, less any deductions to cover pending claims against the OWNER pursuant to Paragraph 14.5B.

B. After filing of the necessary documents to initiate the lien period, the CONTRACTOR shall have 30 days to complete any outstanding items of correction work remaining to be completed or corrected as listed on a final punch list made a part of the Notice of Completion. Upon expiration of the 45 days, referred to in Paragraph 14.10A, the amounts withheld pursuant to the provisions of Paragraph 14.9B herein, for all remaining work items will be returned to the CONTRACTOR; provided, that said work has been completed or corrected to the satisfaction of the OWNER within said 30 days. Otherwise, the CONTRACTOR does hereby waive any and all claims for all monies withheld by the OWNER under the Contract to cover 2 times the value of such remaining uncompleted or uncorrected items.

14.11 CONTRACTOR'S CONTINUING OBLIGATION. The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Notice of Completion, nor any payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a Shop Drawing or sample submittal, will constitute an acceptance of work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.

14.12 FINAL PAYMENT TERMINATES LIABILITY OF OWNER. Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less monies withheld as applicable, pursuant to Paragraph 14.10A. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.9 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act of neglect of the OWNER or of any person relating to or affecting the WORK, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.9 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Completion.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

15.1 SUSPENSION OF WORK BY OWNER. The OWNER, acting through the ENGINEER, may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt from the ENGINEER of a notice of resumption of work. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

15.2 TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)

A. In the event of default by the CONTRACTOR, the OWNER may give 10 days written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default. It shall be considered a default by the CONTRACTOR whenever CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or quality of work meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ENGINEER's instructions; (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workers, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue the Notice of Termination.

B. In the event the Agreement is terminated in accordance with Paragraph 15.2A, herein, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall not have claim to the difference.

15.3 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE). The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of work performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated which would be needed in the WORK and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ENGINEER in accordance with the procedure prescribed for the making of the final application for payment and payment under Paragraphs 14.8 and 14.9.

15.4 TERMINATION OF AGREEMENT BY CONTRACTOR. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: 1) the WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the Agreement has not been received from the OWNER within this time period; or, 2) the OWNER should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

ARTICLE 16 MISCELLANEOUS

16.1 GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

16.2 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK

A. The CONTRACTOR may use on the Project, with ENGINEER's approval, such stone, gravel, sand, or other material determined suitable by the ENGINEER, as may be found in the excavation. The CONTRACTOR will be paid for the excavation of such material at the corresponding contract unit price. No additional payment will be made for utilizing the material from excavation as borrow, or select borrow.

B. The CONTRACTOR shall replace, at its own expense, with other acceptable material, all of that portion of the excavated material so removed and used which was needed for use on the project. No charge for the materials so used will be made against the CONTRACTOR except that the CONTRACTOR shall be responsible for payment of any royalties required.

C. The CONTRACTOR shall not excavate or remove any material from within the Project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the ENGINEER.

D. In the event the CONTRACTOR has processed materials from OWNER-furnished sources in excess of the quantities required for performance of this contract, including any waste material produced as a by-product, the OWNER may retain possession of such materials without obligation to reimburse the CONTRACTOR for the cost of their production. When such materials are in a stockpile, the ENGINEER may require: That it remain in stockpile; the CONTRACTOR level such stockpile(s); or that the CONTRACTOR remove such materials and restore the premises to a satisfactory condition at the CONTRACTOR's expense. This provision shall not preclude the OWNER from arranging with the CONTRACTOR to produce material over and above the contract needs, payment for which shall be by written agreement between the OWNER and the CONTRACTOR.

E. Unless otherwise provided, the material from any existing old structure may be used temporarily by the CONTRACTOR in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the ENGINEER.

16.3 RIGHT TO AUDIT. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such

representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.

16.4 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, such as shell heaps, land or sea mammal bones or tusks, or other items of historical significance, the CONTRACTOR shall cease operations immediately and notify the ENGINEER. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the ENGINEER order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the CONTRACTOR to perform extra work, such order(s) shall be covered by an appropriate contract change document.

16.5 CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS. All work over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be interfered with and the existing navigable depths will not be impaired, except as allowed by permit issued the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.

16.6 GRATUITY AND CONFLICT OF INTEREST. The CONTRACTOR agrees to not extend any loan, gratuity or gift of money of any form whatsoever to any employee or elected official of the OWNER.

16.7 SUITS OF LAW CONCERNING THE WORK

A. Should a suit of law be entered into, either by the CONTRACTOR (or the CONTRACTOR's surety) against the OWNER, or by the OWNER against the CONTRACTOR (or the CONTRACTOR's surety), the suit of law shall be tried in the First Judicial District of Alaska.

B. If one of the questions at issue is the satisfactory performance of the work by the CONTRACTOR and should the appropriate court of law judge the work of the CONTRACTOR to be unsatisfactory, then the CONTRACTOR (or the CONTRACTOR's surety) shall reimburse the OWNER for all legal and all other expenses (as may be allowed and set by the court) incurred by the OWNER because of the suit of the law and, further, it is agreed that the OWNER may deduct such expense from any sum or sums then, or any that become due the CONTRACTOR under the contract.

16.8 CERTIFIED PAYROLLS

A. All CONTRACTORs or Subcontractor who perform work on a public construction contract for the OWNER shall file a certified payroll with the Alaska Department of Labor before Friday of each week that covers the preceding week (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).

B. In lieu of submitting the State payroll form, the CONTRACTOR's standard payroll form may be submitted, provided it contains the information required by AS 36.05.040 and a statement that the CONTRACTOR is complying with AS 36.10.010.

C. A CONTRACTOR or Subcontractor, who performs work on public construction in the State, as defined by AS 36.95.010(3), shall pay not less than the current prevailing rate of wages as issued by the Alaska Department of Labor before the end of the pay period. (AS 36.05.010).

16.9 PREVAILING WAGE RATES

A. Wage rates for Laborers and Mechanics on Public Contracts, AS 36.05.070. The CONTRACTOR, or Subcontractors, shall pay all employees unconditionally and not less than once a week. Wages may not be less than those stated in Paragraph 16.8C, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors. The scale of wages to be paid shall be posted by the CONTRACTOR in a prominent, easily accessible place at the site of the WORK.

B. Failure to Pay Agreed Wages, AS 36.05.080. If it is found that a laborer, mechanic, or field surveyor employed by the CONTRACTOR or Subcontractor has been, or is being, paid a rate or wages less than the established rate, the OWNER may, by written notice, terminate the CONTRACTOR or Subcontractors right to proceed with the work. The OWNER may prosecute the work to completion by contract or otherwise, and the CONTRACTOR and sureties will be held liable to the OWNER for excess costs for completing the WORK. (Section 2 ch 52 SLA 1959).

C. Listing CONTRACTOR's Who Violate Contracts, AS 36.05.090. In addition, a list giving the names of persons who have disregarded the rights of their employees shall be distributed to all departments of State government and all political subdivisions. No person appearing on this list, and no firm, corporation, partnership or association in which the person has an interest, may work as a CONTRACTOR or Subcontractor on a public construction contract for the State, or a political subdivision of the state, until three years after the date of publication of the list. (Section 3 ch 52 SLA 1959; am Section 9 ch 142 SLA).

16.10 EMPLOYMENT REFERENCE. Workers employed in the execution of the contract by the CONTRACTOR or by any Subcontractor under this contract shall not be required or permitted to labor more than 8 hours a day or 40 hours per week in violation of the provisions of the Alaska Wage and Hour Act, Section 23.10.060.

16.11 COST REDUCTION INCENTIVE

A. At any time within 45 days after the date of the Notice of Award, the CONTRACTOR may submit to the ENGINEER in writing, proposals for modifying the plans, specifications, or other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair in any manner the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards.

B. The cost reduction proposal shall contain the following information:

1. Description of both the existing contract requirements for performing the WORK and the proposed changes.

2. An itemization of the contract requirements that must be changed if the proposal is adopted.
3. A detailed estimate of the time required and the cost of performing the WORK under both the existing contract and the proposed change.
4. A statement of the date by which the CONTRACTOR must receive the decision from the OWNER on the cost reduction proposal.
5. The contract items of WORK effected by the proposed changes including any quantity variations.
6. A description and estimate of costs the OWNER may incur in implementing the proposed changes, such as test and evaluation and operating and support costs.
7. A prediction of any effects the proposed change would have on future operations and maintenance costs to the OWNER.

C. The provisions of this section shall not be construed to require the OWNER to consider any cost reduction proposal which may be submitted; nor will the OWNER be liable to the CONTRACTOR for failure to accept or act upon any cost reduction proposal submitted, or for delays to the work attributable to the consideration or implementation of any such proposal.

D. If a cost reduction proposal is similar to a change in the plans or specifications for the project under consideration by the OWNER at the time the proposal is submitted, the OWNER will not accept such proposal and reserves the right to make such changes without compensation to the CONTRACTOR under the provisions of this section.

E. The CONTRACTOR shall continue to perform the work in accordance with the requirements of the contract until an executed Change Order incorporating the cost reduction proposal has been issued. If any executed Change Order has not been issued by the date upon which the CONTRACTOR's cost reduction proposal specifies that a decision should be made by the OWNER, in writing, the cost reduction proposal shall be considered rejected.

F. The OWNER, shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in Contract Time and construction costs resulting from the adoption of all or any part of such proposal. Should the CONTRACTOR disagree with OWNER's decision on the cost reduction proposal, there is no further consideration. The OWNER reserves the right to make final determination.

G. If the CONTRACTOR's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a contract Change Order, which specifically states that the change is executed pursuant to this cost reduction proposal section. Such Change Order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted to be put into effect and shall include any conditions upon which the OWNER's approval is based, if such approval is conditional. The Change Order shall also describe the estimated net savings in the cost of performing the work attributable to the cost reduction proposal, and shall further provide that the contract cost be adjusted by crediting the OWNER with the estimated net savings amount.

H. Acceptance of the cost reduction proposal and performance of the work does not extend the time of completion of the contract, unless specifically provided in the Change Order authorizing the use of the submitted proposal. Should the adoption of the cost reduction

proposal result in a Contract Time savings, the total Contract Time shall be reduced by an amount equal to the time savings realized.

I. The amount specified to the CONTRACTOR in the Change Order accepted in the cost reduction proposal shall constitute full compensation for the performance of WORK. No claims for additional costs as a result of the changes specified in the cost reduction proposal shall be allowed.

J. The OWNER reserves the right to adopt and utilize any approved cost reduction proposal for general use on any contract administered when it is determined suitable for such application. Cost reduction proposals identical, similar, or previously submitted will not be accepted for consideration if acceptance and compensation has previously been approved. The OWNER reserves the right to use all or part of any cost reduction proposal without obligation or compensation of any kind to the CONTRACTOR.

K. The CONTRACTOR shall bear the costs, if any, to revise all bonds and insurance requirements for the project, to include the cost reduction WORK.

END OF SECTION

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

GENERAL. These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

SGC 2.2 COPIES OF DOCUMENTS. ***Add*** the following:

The OWNER shall furnish to the CONTRACTOR 6 copies of the Contract Documents consisting of bound reduced Drawings, if any, together with 3 sets of full-scale Drawings. Additional quantities of the Contract Documents will be furnished at reproduction cost.

SGC 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES. ***Add*** the following:

C. In the preparation of the Contract Documents, the Engineer of Record has relied upon:

1. The following report of exploration and tests of subsurface conditions at the site of the WORK:

   a. PND Site Survey 3-8-2011
   b. Wood Street Geotechnical Memo 5-9-2011
   c. Copies of these records may be examined upon request at the office of the ENGINEER. As provided in paragraph 4.2 of the General Conditions and as identified and established above, the CONTRACTOR may rely upon the accuracy of the technical data contained in these records, which is incorporated into the Contract Documents by reference. However, the interpretation of such technical data, including any interpolation or extrapolation thereof is the responsibility of the CONTRACTOR to verify prior to bid.

2. Field measurements and visual inspection of the existing structures and surface conditions.

SGC 5.2 INSURANCE AMOUNTS. The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

A. Workers' Compensation: (under Paragraph 5.2C.1 of the General Conditions) as in accordance with AS 23.30.045:

1. State: Statutory
2. Applicable Federal (e.g., Longshore): Statutory

   Note: If the WORK called for in the Contract Documents involves work in or on any navigable waters, the CONTRACTOR shall provide Workers' Compensation coverage which shall include coverage under the Longshore and Harbor Workers' Compensation Act, the Jones Act, and any other coverage required under Federal or State laws pertaining to workers in or on navigable waters.

3. Employers Liability
   Bodily Injury by Accident: $100,000.00 Each Accident

Bodily Injury by Disease:	$100,000.00 Each Employee
Bodily Injury by Disease:	$500,000.00 Policy Limit

a. CONTRACTOR agrees to waive all rights of subrogation against the OWNER and ENGINEER for work performed under Contract.

b. If CONTRACTOR directly utilizes labor outside of the State of Alaska in the prosecution of the WORK, "Other States" endorsement shall be required as a condition of the Contract.

B. Commercial General Liability: (under Paragraph 5.2C.2 of the General Conditions):

1. Combined Single Limit

a. General Policy	$1,000,000.00	Each Occurrence
	$2,000,000.00	Annual Aggregate
b. Products/Completed Operations	$1,000,000.00	Each Occurrence
	$2,000,000.00	Annual Aggregate
c. Personal Injury	$1,000,000.00	Each Occurrence

C. Commercial Automobile Liability: (under Paragraph 5.2C.3 of the General Conditions) including Owned, Hired, and Non-Owned Vehicles:

Combined Single Limit, Bodily Injury and Property Damage $1,000,000.00

D. Policies shall also specify insurance provided by CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER or the ENGINEER.

E. All policies will provide for 30 Days written notice prior to any cancellation or nonrenewal of insurance policies required under Contract except in the event of no-payment of premium where 10 Days is permissible.

F. The OWNER and the ENGINEER shall be named as an "Additional Insured" under all liability coverages listed in this Section, except for workers' compensation insurance.

SCG 14.3 APPLICATION FOR PROGRESS PAYMENT. Paragraph D.

D. The Value of materials stored at the site shall be an amount equal to 85%.

SGC 14.9 FINAL PAYMENT AND ACCEPTANCE. ***Add*** the following paragraph:

B. Prior to the final payment the CONTRACTOR shall contact the Alaska Department of Labor (ADOL) and provide the OWNER with clearance from the ADOL for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample letter for this purpose is provided at the end of this section.

SGC 16.8 CERTIFIED PAYROLLS. ***Change*** paragraph A. to read:

SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS

A. All CONTRACTORs or Subcontractors who perform work on a public construction contract for the OWNER shall file a certified payroll with Alaska Department of Labor. See Section 00830 - Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination.

Alaska Department of Labor
Juneau Field Tax Office
FAX 907-465-2374

From: _____

Subject: ETOLIN STREET AND MEDICAL CAMPUS UTILITIES ASSISTANCE

Timeframe of Contract _____

Please advise whether or not clearance is granted for the following CONTRACTOR or Subcontractor:

_____ _____
Name Address

Per AS 23.20.265 of the Alaska Employment Security Act, this request is for tax liability clearance and release to make final payment for WORK performed under the subject contract. Please send your response to:

Timothy Rooney, Borough Manager
City & Borough of Wrangell
PO Box 531
Wrangell, Alaska 99929
Telephone: (907) 874-2381
Fax: (907) 874-3952

( ) Tax Clearance is granted.
( ) Tax Clearance is NOT granted.

Remarks: _____

_____ _____
Signature Date

_____
Title

END OF SECTION

SECTION 00830 - ALASKA LABOR STANDARDS, REPORTING, AND PREVAILING WAGE RATE DETERMINATION

State of Alaska, Department of Labor, Laborers' and Mechanics' Minimum Rates of Pay, AS 36.05.010 and AS 36.05.050, Wage and Hour Administration Pamphlet No. 600, the latest edition published by the State of Alaska, Department of Labor inclusive, are made a part of this contract by reference.

The CONTRACTOR is responsible for contacting the Alaska Department of Labor to determine compliance with current regulations.

Required Reporting During Contract (to be provided by every CONTRACTOR and Subcontractor):

A. **Certified Payrolls must be submitted every two weeks. Before the second Friday,** each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. If there was no activity for that pay period, indicate ***"No Activity."*** Indicate ***"Start"*** on your first payroll, and ***"Final"*** on your last payroll for this Project. Send to:

Wage and Hour Section Labor Law Compliance Division Alaska Department of Labor P.O. Box 020630 Juneau, AK 99802-0630 (907) 465-4842	and	***Project Manager*** City & Borough of Wrangell P.O. Box 531 Wrangell, AK 99929 (907) 874-2381

B. **Within 10 Days of "Notice of Award/Notice to Proceed"** make a list of **all** Subcontractors. Include their name, address, phone, estimated subcontract amount, and estimated start and finish dates. Send to:

Borough Clerk City & Borough of Wrangell P.O. Box 531 Wrangell, AK 99929 (907) 874-2381	and	***Wage and Hour Section*** Labor Law Compliance Division Alaska Department of Labor P.O. Box 020630 Juneau, AK 99802-0630 (907) 465-4839/4842

C. As part of the **final payment request package:**

A completed Compliance Certificate and Release form (provided in Section 01700 - Project Closeout) from every CONTRACTOR and Subcontractor.

A final Subcontractor list complete with final subcontract amounts and including all equipment rentals (with operators).

END OF SECTION

SECTION 00840 - FEDERAL LABOR STANDARDS, REPORTING, AND PREVAILING WAGE RATE DETERMINATION
Reporting During Contract

A. **Within 15 Days after Notice of Intent to Award,** the CONTRACTOR must compile and submit a list of all Subcontractors and material suppliers, showing all tiers. For each company listed include name, address, phone, employer tax number; DBE status if any; estimated subcontract amount; estimated start and finish dates; and copies of bid tabulations with firm name and number. Send the list to *Addresses B and C*.

B. **Within 30 Days of final award**, the CONTRACTOR and each Subcontractor, who are required to file EEO-1 reports (Standard Form 100 [SF-100]), must send it to the Office of Federal Contract Compliance Programs (OFCCP) Area Office - Address C.

C. **Certified Payrolls must be submitted every two weeks.** Before the second Friday, the CONTRACTOR and each Subcontractor must file:

1. Certified Payrolls with Statements of Compliance for the previous two weeks. If there was no activity for that pay period, indicate "No Activity." Indicate "Start" on your first payroll, and "Final" on your last payroll for this project. Send the original to *Address B* and a complete copy to *Address A.*

2. Weekly Employment Opportunity (EEO) Reports for the previous week to *Address A.* If the information requested (race and gender) is indicated on the copy of the payroll, then this Weekly EEO Report is hereby waived.

D. By the 5th of each month, each CONTRACTOR and Subcontractor must complete the Monthly Employment Utilization Report (CC257) for the previous month for its aggregate workforce in Alaska (for federal and non-federal projects). Make a list of all projects (federal and non-federal) in Alaska over $10,000. Include the firm name, name and location of project, project #, % complete, contract amount, and established date of completion. Send both the CC257 and the list of projects to Addresses A and C.

E. Preparing the final payment request, the CONTRACTOR must verify that the subcontractor list is up-to-date and includes all parties submitting certified payrolls (i.e., equipment rental with operator companies, trucking services providing imported materials, surveying firms, etc.). Send a copy of amended lists to Addresses A and B. Submit completed Compliance Certification and Release (provided at the pre-construction conference) for the Prime Contractor and each Subcontractor to Address A.

Address A	***Address B***	***Address C***
Project Manager City & Borough of Wrangell P.O. Box 531 Wrangell, AK 99929 (907)874-3494	Wage and Hour Section Labor Standards & Alaska Dept. of Labor P.O. Box 020630 Juneau, AK 99802-0630 (907)465-4839/4842	OFCCP Area Office 605 W. 4th Ave., Room G68 Anchorage, AK 99501 (907)271-2864

END OF SECTION

SECTION 00852 – PERMITS

PART 1 – GENERAL

COMPLIANCE WITH PERMITS

All materials and construction methods must comply with the permit conditions in the permits provided in Appendix B.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK

PART 1 – GENERAL

1.1 GENERAL

A. The WORK to be performed under this contract shall consist of furnishing all plant, tools, equipment, materials, supplies, manufactured articles, labor, transportation and services, including fuel, power, water, and essential communications, and performing all WORK, or other operations required for the fulfillment of the contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. WORK consists of various quantities of mobilization, construction surveying, gravel road, storm runoff collection, drainage culvert, water main, subdivision force main system, clinic pump station and force main system, coordination with local utilities for the installation of overhead electricity (installation by others), and other improvements.

1.3 SITE OF THE WORK

A. The site of the WORK is located in Wrangell, Alaska at the intersection of Etolin Street and Cedar Street.

1.4 BEGINNING AND COMPLETION OF THE WORK

A. Time is the essence of the contract. All WORK shall be completed in accordance with the following schedule:

WORK DESCRIPTION	COMPLETION DATE
Utility Work Completion	May 15, 2012
Substantial Completion	June 15, 2012

1.5 CONTRACT METHOD

A. The WORK hereunder will be constructed under a unit price contract.

1.6 WORK BY OTHERS

A. The CONTRACTOR’s attention is directed to the fact that work may be conducted at the site by other contractors during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause a minimum of interference with the work of such other contractors, and shall cooperate fully with such contractors to provide continued safe access to their respective portions of the site, as required to perform work under their respective contracts.

B. Interference With Work On Utilities: The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.7 MEDICAL CAMPUS ACCESS

A. Access to the medical campus must be maintained during construction via the access road from Wood Street.

B. The Etolin Street roadway section must be fully in place, compacted and capable of withstanding HS-20 vehicle loads before any closure of the Wood Street access road.

1.8 CONTRACTOR USE OF PROJECT SITE

A. The CONTRACTOR's use of the Project site shall be limited to its construction operations, including on-site storage of materials.

1.9 OWNER USE OF THE PROJECT SITE

A. The OWNER may utilize all or part of the existing site during the entire period of construction for the conduct of the OWNER's normal operations. The CONTRACTOR shall cooperate and coordinate with the ENGINEER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operations at the same time. In any event, the OWNER shall be allowed access to the Project site during the period of construction.

1. 10 PROJECT MEETINGS

A. Pre-Construction Conference

1. Prior to the commencement of WORK at the site, a Pre-Construction Conference will be held at a mutually agreed time and place which shall be attended by the CONTRACTOR's Project manager, its superintendent, and its Subcontractors as the CONTRACTOR deems appropriate. Other attendants will be:

    a. ENGINEER and the Inspector.
    b. Representatives of OWNER.
    c. Governmental representatives as appropriate.
    d. Others as requested by CONTRACTOR, OWNER, or ENGINEER.

2. Unless previously submitted to the ENGINEER, the CONTRACTOR shall bring one copy each of the following:

    a. Plan of Operation.
    b. Project Overview Bar Chart Schedule.
    c. Procurement schedule of major equipment and materials and items requiring long lead time.
    d. Shop Drawing/Sample/Substitute or "Or Equal"

submittal schedule.

e. Name and telephone number of CONTRACTOR's Project Supervisor.

f. Schedule of Values

3. The purpose of the Pre-Construction Conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date.

The CONTRACTOR should be prepared to discuss all of the items listed below:

a. Status of CONTRACTOR's insurance and bonds.
b. CONTRACTOR's tentative schedules.
c. Transmittal, review, and distribution of CONTRACTOR's submittals.
d. Processing applications for payment.
e. Maintaining record documents.
f. Critical WORK sequencing.
g. Field decisions and Change Orders.
h. Use of Project site, office and storage areas, security, housekeeping, and OWNER's needs.
i. Major equipment deliveries and priorities.
j. CONTRACTOR's assignments for safety and first aid.

4. The OWNER will preside at the Pre-Construction Conference and will arrange for keeping and distributing the minutes to all persons in attendance.

5. The CONTRACTOR and its Subcontractors should plan on the conference taking no less than 2 hours. The items listed in paragraph 3 will be covered as well as reviewing the plans and specifications, in extensive detail, with the ENGINEER and the OWNER.

B. Progress Meetings

1 The CONTRACTOR shall schedule and hold weekly progress meetings and at other times as requested by the ENGINEER, or as required by progress of the WORK. The CONTRACTOR, ENGINEER, and all subcontractors active on the site must attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its suppliers, manufacturers, and other subcontractors.

2. The ENGINEER shall preside at the meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings will be to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the CONTRACTOR is required to present any issues which may impact its work, with a view to resolve these issues expeditiously.

1.11 DEFINITIONS APPLICABLE TO TECHNICAL SPECIFICATIONS. The following words

have the meaning defined in the Technical Portions of the WORK:

Furnish - means to supply and deliver to the site, to unload and unpack ready for assembly, installation, testing, and start-up.

Indicated - is a word used to direct the CONTRACTOR to information contained on the drawings or in the Specifications. Terms such as “shown,” “noted,” “scheduled,” and “specified” also may be used to assist in locating information but no limitation of location is implied or intended.

Install - defines operations at the site including assembly, erection, placing, anchoring, applying, shaping to dimension, finishing, curing, protecting, and cleaning, ready for the OWNER’s use.

Installer - a person or firm engaged by the CONTRACTOR or its subcontract or any subcontractor for the performance of installation, erection, or application work at the site. Installers must be expert in the operations they are engaged to perform.

Provide - is defined as furnish and install, ready for the intended use.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SCOPE

A. Payment for the various items of the Bid Schedule, 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).

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

C. In addition to other incidental items of WORK listed elsewhere in the contract, the following items shall also be considered as incidental to other items of WORK under this contract:

1. Removal and replacement of survey monuments and markers disturbed during construction, whether shown on the Plans or not.
2. Re-vegetating areas disturbed during construction.
3. Siltation, pollution control and construction entrances.
4. Maintenance of all services through the Project area, including water, storm, garbage pickup, mail delivery, other deliveries and emergency vehicles.
5. All traffic control, including flaggers.
6. Miscellaneous connecting and attachment hardware as required installing new equipment.
7. Transport, shipping and delivery of all materials to the project site, undamaged and in new condition.
8. All fittings, valves, piping, clamps, transitions, flanges, and miscellaneous appurtenances as required for water line and force main installation.
9. Temporary shoring of trenches or bracing of existing facilities as required for constructing any/all improvements.
10. Minor grading of fill materials as required to match existing grades and maintain positive surface drainage.
11. Minor changes in grades to fit field conditions.
12. Trench excavation including bedrock excavation and bedding as required for storm pipe and associated catch basin and manhole installations.
13. Trench excavation including bedrock excavation and bedding as required for waterline and associated installations.
14. Trench excavation including bedrock excavation and bedding as required for sanitary sewer and associated installations.
15. Construction Surveying
16. Pipe bedding materials for associated utility installation.
17. Geotextile fabric

1.2 MOBILIZATION (Pay Item No. 1505.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Mobilization shall be based upon the completion of the entire WORK as a Lump Sum Pay unit, complete, all in accordance with the requirements of the Contract Documents.

B. Payment for Mobilization under the base bid shall be made at the amount shown under Pay Item No. 1505.1, which payment shall constitute full compensation for all WORK described in Section 1505 - Mobilization, as shown on the plans and as directed by the ENGINEER.

C. Partial payments will be made as the WORK progresses as follows:

1. When 5% of the total original contract amount is earned from other pay items, 50% of the amount bid for Mobilization, or 5% of the original contract amount, whichever is lesser, will be paid.

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

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

1.3 TEMPOARARY EROSION AND SEDIMENT CONTROL (Pay Item No. 1570.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Temporary Erosion and Sediment Control shall be based upon the completion of the entire WORK as a Lump Sum Pay unit, complete, all in accordance with the requirements of the Contract Documents.

B. Construction entrances, stormwater pollution prevention plan development and implementation and protection of fish stream are included under this pay item

C. Payment for Temporary Erosion and Sediment Control under the Base Bid shall be made at the Lump Sum Price named in the Bid Schedule under Pay Item No. 1570.1, which payment shall constitute full compensation for all WORK described in Section 01570- Erosion Control, as shown on the plans and as directed by the ENGINEER.

2.1 AS-BUILT SURVEYS (Pay Item 2201.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for As-Built Surveys shall be based upon the completion of the entire WORK as a Lump Sum Pay unit, complete in accordance with the Contract Documents.

B. Verifying Etolin Street ROW, preparing exhibits for and recording the utility easement are considered incidental to this work.

C. Payment for As-Built Surveys under the Base Bid shall be made at the Lump Sum price named in the Bid Schedule under Pay Item No. 2201.1, which payment shall constitute full compensation for all WORK described in Section 2201 – As-Built Surveys.

2.2 CLEARING AND GRUBBING (Pay Item 2202.1) PRICE BASED ON ACRE

C. Measurement for payment for Clearing and Grubbing shall be based upon the number of acres cleared and grubbed. The area shall be determined by surveyed limits of clearing and grubbing not to exceed the limits shown on the plans.

D. Tree falling, root wad removal and disposal or burning of wood debris are included in this pay item.

C. Payment for Clearing and Grubbing under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.1, which payment shall constitute full compensation for all WORK described in Section 2202 - Excavation and Fill, as shown on the plans and as directed by the ENGINEER.

2.3 UNSUITABLE EXCAVATION INCUDING HAUL (Pay Item No. 2202.2) PRICE BASED ON, CUBIC YARD

A. Measurement for payment for Unsuitable Excavation Including Haul shall be based on the number of cubic yards of overburden removed and disposed offsite. This volume shall be determined by average end area method utilizing original ground survey and a survey of competent sub grade layer performed after the removal of all unsuitable material. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods for calculation of volume.

B. Stockpiling, construction surveying and disposal will not be measured for payment but will be considered incidental to this WORK.

E. Payment for Unsuitable Excavation Including Haul under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.2, which payment shall constitute full compensation for all WORK described in Section 02202 - Excavation and Fill, as shown on the plans and as directed by the ENGINEER

2.4 EXCAVATION AND FILL (Pay Item No. 2202.3) PRICE BASED ON QUANTITY, CUBIC YARD

A. Measurement for payment for Excavation and Fill shall be based on the number of cubic yards of shot rock excavated and placed. This volume shall be determined by average end area method utilizing the survey of competent subgrade performed after unsuitable excavation and a subsequent survey performed after the placement of shot rock. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods for calculation of volume.

B. Drilling, blasting, sorting, preparing subgrade, geotextile fabric, placement, guardrail, surveying and grading will not be measured for payment, but will be considered incidental to this WORK.

C. Payment for Excavation and fill under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.3, which payment shall constitute full compensation for all WORK described in Section 2202 - Excavation and Fill, as shown on the plans and as directed by the ENGINEER.

2.5 EXCAVATION AND STOCKPILE (Pay Item No. 2202.4) PRICE BASED ON QUANTITY, CUBIC YARD

A. Measurement for payment for Excavation and Stockpile shall be based on the number of cubic yards of shot rock excavated and stockpiled. This volume shall be determined by average end area method utilizing the survey of competent subgrade performed after unsuitable excavation and a subsequent survey performed of the final stockpile at the City pit. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods for calculation of volume.

B. Drilling, blasting, sorting, hauling, placement, and surveying will not be measured for payment, but will be considered incidental to this WORK.

C. Payment for Excavation and Stockpile under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.4, which payment shall constitute full compensation for all WORK described in Section 2202 - Excavation and Fill, as shown on the plans and as directed by the ENGINEER.

2.6 BASE COURSE (Pay Item No. 2202.5) PRICE BASED ON QUANTITY, CUBIC YARD

A. Measurement for payment for Base Course shall be based on the number of cubic yards of base course and topping course in place as determined by design template neat lines.

B. Preparing subgrade, compaction, and grading will be considered incidental to this work under Section 02202- Excavation and Fill.

C. Payment for Base Course under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.5, which payment shall constitute full compensation for all WORK described 02204- Base Course as shown on the plans and as directed by the ENGINEER.

2.7 4-INCH FORCE MAIN (Pay Item No. 2401.1) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Measurement for payment for 4-inch Force Main, shall be measured by the staked length and include all service connections, couplings, fittings, valves, valve boxes, lids, insulation, cleanouts, piping, clamps, connections, transitions, flanges and other miscellaneous appurtenances along the length of the pipe, all in accordance with the requirements of the Contract Documents.

B. Trench excavation, sheeting and bracing, dewatering, bedding, backfill, cleaning and testing, and all other items necessary for a complete installation of Force Main will not be measured for payment but will be considered incidental to this WORK.

.C. Payment for 4-inch Force Main under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.1, which payment shall constitute full compensation for all WORK described in Section 2401 – Sanitary Sewer Service, as shown on the plans and as directed by the ENGINEER.

2.8 2-INCH FORCE MAIN (Pay Item No. 2401.2) PRICE BASED ON QUANTITY, LINEAR FOOT

A. Measurement for payment for 2-inch Force Main, shall be measured by the staked length and include all service connections, couplings, fittings, valves, valve boxes, lids, insulation, cleanouts, piping, clamps, connections, transitions, flanges and other miscellaneous appurtenances along the length of the pipe, all in accordance with the requirements of the Contract Documents.

B. Trench excavation, sheeting and bracing, dewatering, bedding, backfill, cleaning and testing, and all other items necessary for a complete installation of Force Main will not be

measured for payment but will be considered incidental to this WORK.

.C. Payment for 2-inch Force Main under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.2, which payment shall constitute full compensation for all WORK described in Section 2401 – Sanitary Sewer Service, as shown on the plans and as directed by the ENGINEER.

2.9 LIFT STATION (Pay Item No. 2401.3) PRICE BASED ON EACH

A. Measurement for payment for Pump Station shall be based upon the completion of the entire WORK as a Lump Sum Pay unit. Install Structure, equipment and connections all in accordance with the requirements of the Contract Documents.

B. Structural excavation, cast in place concrete, necessary base and bedding courses, pipe connections and miscellaneous appurtenances are included in this pay item.

C. Payment for Pump Station under the Base Bid will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.3, which payment will constitute full compensation for all WORK described in Section 02401 – Sanitary Sewer Service, as shown on the Plans and as directed by the ENGINEER.

2.10 GRAVITY SANITARY SEWER (Pay Item No. 2401.4) PRICE BASED ON LINEAR FOOT

A. Measurement for payment for Sanitary Sewer, shall be measured by the staked length and include all side service connections, manholes, couplings, fittings, insulation, cleanouts, piping, concrete encasements, transitions, flanges and other miscellaneous appurtenances along the length of the pipe, all in accordance with the requirements of the Contract Documents.

B. Trench excavation, sheeting and bracing, dewatering, bedding, backfill, cleaning and testing, and all other items necessary for a complete installation of Sanitary Sewer will not be measured for payment but will be considered incidental this WORK.

C. Payment for Sanitary Sewer under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2401.4, which payment shall constitute full compensation for all WORK described in Section 2401 – Sanitary Sewer Service, as shown on the plans and as directed by the ENGINEER.

2.11 STORMDRAIN (Pay Item Nos. 2501.1) PRICE BASED ON LINEAR FOOT

A. Measurement for payment for Stormdrain shall be measured by the staked length and include all pipe, structures, couplings, fittings, transitions, flanges and other miscellaneous appurtenances along the length of the pipe, all in accordance with the requirements of the Contract Documents.

B. Excavation, bedrock excavation, ditch construction, ditch lining, catch basins, utility stakes, pipe bedding and porous backfill shall not be measured for payment, but shall be considered incidental to this WORK.

C. Payment for Stormdrain under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2501.1, which payment shall constitute full

compensation for all WORK described in Section 2501 – Stormwater, as shown on the plans and as directed by the ENGINEER.

2.12 WATERMAIN (Pay Item No. 2601.1) PRICES BASED ON QUANTITY, LINEAR FOOT

A. Measurement for payment for Water main shall be per linear foot actually installed, complete in place, as required by the Contract Documents and as shown on the plans.

B. All fittings, valves, valve boxes, insulation, piping, pipe brackets, connections, transitions, flanges, hydrants, vaults and other miscellaneous water service components shall not be measured for payment, but shall be considered incidental to this WORK.

C. Payment for Water Main under the Base Bid will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2601.1, which payment will constitute full compensation for all WORK described in Section 2601 – Water System, as shown on the Plans and as directed by the ENGINEER.

2.13 SEEDING (Pay Item 2801.1) PRICE BASED ON ACRE

D. Measurement for payment for Seeding shall be based upon the number of acres on surface seeded. The area shall be determined by surveyed limits of seeding not to exceed the limits of cut and fill shown on the plans and excluding trafficked areas.

B. Payment for Seeding under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2801.1, which payment shall constitute full compensation for all WORK described in Section 2801-SEEDING shown on the plans and as directed by the ENGINEER.

2.14 SIGNAGE AND STRIPING (Pay Item No. 2910.1) PRICE BASED ON LUMP SUM

A. Measurement for payment for Signage and Striping will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete all sign installation and pavement markings in accordance with the requirement of the Contract Documents.

B. Payment for Signage and Striping under the Base Bid will be made at the Lump Sum Price named in the Bid Schedule under Pay Item No. 2910.1, which payment will constitute full compensation for all WORK described in Section 2910 – Signage and Striping, as shown on the Plans and as directed by the ENGINEER.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01070 - ACRONYMS OF INSTITUTIONS

PART 1 - GENERAL

1.1 GENERAL

A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms which may appear in these Specifications shall have the meanings indicated herein.

1.2 ACRONYMS

AAMA	Architectural Aluminum Manufacturer's Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AGMA	American Gear Manufacturer's Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	Acoustical Society of America
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
ATM	Alaska Test Methods
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International

BHMA	Builders Hardware Manufacturer's Association
CBM	Certified Ballast Manufacturers
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drill Manufacturer's Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
FPL	Forest Products Laboratory
HI	Hydronics Institute
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IOS	International Organization for Standardization
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MPTA	Mechanical Power Transmission Association
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NLGI	National Lubricating Grease Institute
NMA	National Microfilm Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
RIS	Redwood Inspection Service
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council

SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01090 - REFERENCE STANDARDS

PART 1 - GENERAL

1.1 GENERAL

A. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.

B. Applicable Publications: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.

C. Specialists, Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Without limiting the generality of other requirements of the Specifications, all WORK specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.

B. References herein to "Building Code" or "Uniform Building Code" shall mean Uniform Building Code of the International Conference of Building Officials (ICBO).

C. Similarly, references to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.

D. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought

to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.

E. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.

F. Applicable Standard Specifications: References in Contract Sections 02801 -Asphalt Concrete Pavement to Standard Specifications shall mean the Alaska Department of Transportation and Public Facilities "Standard Specifications for Highway Construction - 1998" and any supplements or amendments thereto.

G. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

H. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01300 - CONTRACTOR SUBMITTALS

PART 1 - GENERAL

1.1 GENERAL

A. Whenever submittals are required hereunder, all such submittals by the CONTRACTOR shall be submitted to the ENGINEER.

B. Within 14 days after the date of commencement as stated in the Notice of Award/Notice to Proceed, the CONTRACTOR shall submit the following items to the ENGINEER for review:

1. A preliminary schedule of Shop Drawing, Sample and proposed Substitutes or "Or-Equal" submittals.
2. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and the required date for receipt of the permit.
3. A complete progress schedule for all phases of the project.
4. All required Material Safety Data Sheets.
5. A staging and traffic maintenance plan, as required.
6. A plan for temporary erosion control and pollution control, as required.
7. A letter designating the CONTRACTOR's Superintendent, defining that person's responsibility and authority, and providing a specimen of his signature.
8. A letter designating the CONTRACTOR's safety representative and the person's responsibility and authority.
9. A Schedule of Values.

1.2 SHOP DRAWING SUBMITTAL

A. Wherever called for in the Contract Documents, or where required by the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER, for review, 4 copies of each shop drawing submittal unless otherwise indicated. Electronic submittal transmission may be allowed if approved in advance by the ENGINEER. The term " Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items.

B. All Shop Drawing Submittals shall be accompanied by the ENGINEER's standard submittal transmittal form. The form may be obtained in quantity from the ENGINEER. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for resubmittal.

C. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the ENGINEER.

D. Except as otherwise provided herein, the ENGINEER will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 21 calendar days following their receipt by the ENGINEER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item. The OWNER reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the ENGINEER review beyond the second submittal. The ENGINEER's maximum review period for each submittal including all re-submittals will be 14 days per submission. In other words, for a submittal that requires two re-submittals before it is complete, the maximum review period for that submittal could be 63 Days.

E. If 3 copies (or a single electronic transmission) of a submittal are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said submittal will not be required.

F. If 3 copies (or a single electronic transmission) of a submittal are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision and resubmission of said submittal is not required.

G. If one copy (or a single electronic transmission) of the submittal is returned to the CONTRACTOR marked "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.

H. If one copy (or a single electronic transmission) of the submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.

I. Fabrication of an item may be commenced only after the ENGINEER has reviewed the pertinent submittal and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittal shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements. Only a change order can alter the contract price, time, or requirements.

J. All CONTRACTOR shop drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ENGINEER. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the ENGINEER of any CONTRACTOR submittal will be made for any items which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the ENGINEER, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.

K. The ENGINEER's review of CONTRACTOR shop drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits

due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.

1.3 SAMPLES SUBMITTAL

A. Whenever in the Specifications samples are required, the CONTRACTOR shall submit not less than 3 samples of each item or material to the ENGINEER for acceptance at no additional cost to the OWNER.

B. Samples, as required herein, shall be submitted for acceptance a minimum of 21 days prior to ordering such material for delivery to the job site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.

C. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Supplier's names for identification and submitted to the ENGINEER for acceptance. Upon receiving acceptance of the ENGINEER, one set of the samples will be stamped and dated by the ENGINEER and returned to the CONTRACTOR, and one set of samples will be retained by the ENGINEER, and one set of samples shall remain at the job site until completion of the WORK.

D. Unless clearly stated otherwise, it is assumed that all colors and textures of specified items presented in sample submittal are from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products or equipment lines, and their selection will require an increase in contract time or price, the CONTRACTOR will clearly indicate this on the transmittal page of the submittal.

1.4 TECHNICAL MANUAL SUBMITTAL

A. Using the outline provided in the Equipment Maintenance Summary Sheet (copy of which may be obtained from the ENGINEER), the CONTRACTOR shall include in the technical manuals for each item of mechanical, electrical, and instrumentation equipment, the following:

1. Complete operating instructions, including location of controls, special tools or other equipment required, related instrumentation, and other equipment needed for operation.
2. Lubrication schedules, including the lubricant SAE grade and type, temperature range of lubricants, and including frequency of required lubrication.
3. Preventive maintenance procedures and schedules.
4. Parts lists, by generic title and identification number, complete, with exploded views of each assembly.
5. Disassembly and reassembly instructions.
6. Name and location of nearest supplier and spare parts warehouse.
7. Recommended troubleshooting and startup procedures.
8. Reproducible prints of the record drawings, including diagrams and schematics, as required under the electrical and instrumentation portions of these Specifications.

9. Tabulation of proper settings for all pressure relief valves, (low/high) pressure switches and other related equipment protection devices.
10. Detailed test procedures to determine performance efficiency of equipment.
11. List of all electrical relay settings including alarm and contact settings.

B. The CONTRACTOR shall furnish to the ENGINEER 5 identical sets of technical manuals. Each set shall consist of one or more volumes, each of which shall be bound in a standard size, 3-ring, loose-leaf vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches. A table of contents shall be provided which indicates all equipment in the technical manuals.

C. All technical manuals shall be submitted in final form to the ENGINEER not later than the 75 percent of construction completion date. All discrepancies found by the ENGINEER in the technical manuals shall be corrected by the CONTRACTOR within 30 days from the date of written notification by the ENGINEER.

D. Incomplete or unacceptable technical manuals at the 75 percent construction completion point shall constitute sufficient justification to withhold payment for work completed beyond that period in accordance with Paragraph “Technical Manual Submittal” of Section 01700, “Project Closeout.”

1.5 SPARE PARTS LIST SUBMITTAL

A. The CONTRACTOR shall furnish to the ENGINEER 5 identical sets of spare parts information for all mechanical, electrical, and instrumentation equipment. The spare parts list shall include the current list price of each spare part. The spare parts list shall be limited to those spare parts which each manufacturer recommends be maintained by the OWNER in inventory at the plant site. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to facilitate the OWNER in ordering. The CONTRACTOR shall cross-reference all spare parts lists to the equipment numbers designated in the Contract Documents. The spare parts lists shall be bound in standard size, 3-ring, loose leaf, vinyl plastic hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches.

1.6 RECORD DRAWINGS SUBMITTALS

A. The CONTRACTOR shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all Project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the WORK as actually constructed. These master record drawings, of the CONTRACTOR’s representation of as-built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up-to-date during the progress of the WORK.

B. In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by Change Order Drawings or final Shop Drawings, and by including appropriate reference information describing the Change Orders by number and the Shop Drawings by manufacturer, drawing, and revision numbers.

C. Record Drawings shall be accessible to the ENGINEER at all times during the construction period and shall be delivered to the ENGINEER on the 20th working day of every third month after the month in which the Notice to Proceed is given as well as upon completion of the WORK.

D. Final payment will not be acted upon until the CONTRACTOR-prepared record drawings have been delivered to the ENGINEER.

1.7 PROGRESS SCHEDULES

A. The progress schedule shall be in Bar Chart or Critical Path Method (CPM) form, as required by the ENGINEER.

B. The progress schedule shall show the order in which the CONTRACTOR proposes to carry out the WORK and the contemplated date on which the CONTRACTOR and their subcontractors will start and finish each of the salient features of the work, including any scheduled periods of shutdown. The schedule shall also indicate any anticipated periods of multiple-shift work.

C. Upon substantial changes to the CONTRACTOR's progress schedule of work or upon request of the ENGINEER, the CONTRACTOR shall submit a revised progress schedule(s) in the form required. Such revised schedule(s) shall conform with the Contract Time and take into account delays which may have been encountered in the performance of the WORK. In submitting a revised schedule, the CONTRACTOR shall state specifically the reason for the revision and the adjustments made in his schedule or methods of operation to ensure the completion of all the WORK within the Contract Time.

1.8 PROPOSED SUBSTITUTES OR "OR-EQUAL" ITEM SUBMITTAL

A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other suppliers may be accepted by the ENGINEER if sufficient information is submitted by the CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.

2. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.
3. The ENGINEER may require the CONTRACTOR, to furnish at the CONTRACTOR's expense, additional data about the proposed substitute.
4. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
5. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract documents and for adequacy of the substitute item.
6. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's work, the work of its subcontractors and of other contractors, and shall effect such changes without cost to the OWNER. This shall include the cost for redesign and claims of other contractor affected by the resulting change.

B. The procedure for review by the ENGINEER will include the following:

1. If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the ENGINEER on the "Substitution Request Form" for acceptance thereof.
2. Unless otherwise provided by law or authorized in writing by the ENGINEER, the "Substitution Request Form(s)" shall be submitted within the 21-day period after Notice of Award.
3. Wherever a proposed substitute material or equipment has not been submitted within said 21-day period, or wherever the submission of a proposed substitute material or equipment has been judged to be unacceptable by the ENGINEER, the CONTRACTOR shall provide material or equipment named in the Contract Documents.
4. The CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified, and be suited to the same use as that specified.
5. The ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. In no case will this reasonable time period be less than 30 days.
6. As applicable, no shop drawing submittals will be made for a substitute item nor will any substitute item be ordered, installed, or utilized without the ENGINEER's prior written acceptance of the CONTRACTOR's "Substitution Request Form" which will be evidenced by a Change Order.
7. The ENGINEER will record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ENGINEER for evaluating each proposed substitute.

C. The CONTRACTOR's application using the "Substitution Request Forms" shall contain the following statements and/or information which shall be considered by the ENGINEER in evaluating the proposed substitution:

1. The evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of substantial completion on time.
2. Whether or not acceptance of the substitute for use in the WORK will require a change in any of the Contract Documents to adopt the design to the proposed substitute.
3. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
4. All variations of the proposed substitute for that specified will be identified.
5. Available maintenance, repair, and replacement service and its estimated cost will be indicated.
6. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.

1.9 MATERIAL CERTIFICATON SUBMITTAL

A. The ENGINEER may permit the use, prior to sampling, inspection and testing, of certain materials or assemblies when accompanied by manufacturer's material certifications stating that such materials or assemblies fully comply with the requirements of the Contract. The certification shall be signed by the manufacturer, and will specifically reference the material's compliance with the AASHTO, ASTM and/or CBJ Standards specified in the applicable Contract Documents.

B. Material Certifications shall be submitted to the engineer prior to incorporating the item into the WORK.

C. Materials or assemblies used on the basis of material certifications may be sampled, inspected and/or tested at any time, and if found not in conformity with these Specifications, will be subject to rejection whether in place or not.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION (not used)

(SUBSTITUTION REQUEST FORM – next page)

City & Borough of Wrangell
SUBSTITUTION REQUEST FORM

TO: _____ Project: _____
Contract No. _____
OWNER: _____

SPECIFIED ITEM:

Section	Page	Paragraph	Description
_____	_____	_____	_____

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: _____
Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request. Applicable portions of the data are clearly identified.

The undersigned states that the following paragraphs, unless modified on attachments are correct:

1. The proposed substitution does not affect dimensions shown on Drawings and will not require a change in any of the Contract Documents.

2. The undersigned will pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution which is estimated to be $_____.

3. The proposed substitution will have no adverse affect on other contractors, the construction schedule (specifically the date of substantial completion), or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

5. The incorporation or use of the substitute in connection with the WORK is not subject to payment of any license fee or royalty.

The undersigned further states that the function, appearance, and quality of the Proposed Substitution are equivalent or superior to the Specified item.

Submitted by CONTRACTOR: _____
Signature _____
Firm: _____
By: _____
Title: _____
Date: _____
Attachments: _____

Reviewed by ARCHITECT/ENGINEER_____
☐ Accepted ☐ Accepted as Noted
☐ Not Accepted ☐ Received Too Late
Date: _____
Telephone: _____

END OF SECTION

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.1 DEFINITION

A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

1.2 INSPECTION AT PLACE OF MANUFACTURE

A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the ENGINEER at the place of manufacture.

B. The presence of the ENGINEER at the place of manufacturer, however, shall not relieve the CONTRACTOR of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided by any act or omission on the part of the ENGINEER.

1.3 SAMPLING AND TESTING

A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, ATM, and AASHTO as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ENGINEER will insure the OWNER that the quality of the workmanship is in full accord with the Contract Documents.

B. Any waiver by the OWNER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.

C. Notwithstanding the existence of such waiver, the ENGINEER reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the ENGINEER to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

1.4 INSPECTION AND TESTING LABORATORY SERVICE

A. Inspection and testing laboratory service shall comply with the following:

1. OWNER will appoint, employ, and pay for services of an independent firm to perform inspection and testing or will perform inspection and testing itself unless specific quality control testing is required by the CONTRACTOR under these specifications.

2. The OWNER will appoint, employ and pay for services to perform inspections as specified in individual specification sections, unless specified otherwise.
3. Reports will be submitted by the independent firm to the ENGINEER in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
4. The CONTRACTOR shall cooperate with the ENGINEER or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
5. The CONTRACTOR shall notify OWNER 24 hours prior to the expected time for operations requiring inspection and laboratory testing services.
6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the OWNER. The CONTRACTOR shall bear all costs from such retesting at no additional cost to the OWNER.
7. For samples and tests required for CONTRACTOR'S use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use shall be included in the Contract Price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION

A. Inspection: The OWNER will appoint, employ and pay for services to inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.

B. Measurements: The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.

C. Manufacturer's Instructions: Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

END OF SECTION

SECTION 01505 - MOBILIZATION

PART 1 - GENERAL

1.1 GENERAL

A. Mobilization shall include the obtaining of all permits; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the WORK. Mobilization shall include the following principal items:

1. Moving on to the site of all CONTRACTOR's plant and equipment required for operations.
2. Providing all on-site communication facilities, including radios and cellular phones.
3. Obtaining all required permits.
4. Having all OSHA required notices and establishment of safety programs.
5. Having the CONTRACTOR's superintendent at the job site full time.
6. Submitting initial submittals.

1.2 PAYMENT FOR MOBILIZATION

A. The CONTRACTOR's attention is directed to the condition that no payment for Mobilization, or any part thereof will be approved for payment under the contract until all Mobilization items listed above have been completed as specified.

B. As soon as practicable after receipt of the Notice to Proceed, the CONTRACTOR shall submit a breakdown to the ENGINEER for approval, which shall show the estimated value of each major component of Mobilization. When approved by the ENGINEER, the breakdown will be the basis for initial progress payments in which Mobilization is included.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01520 - SECURITY

PART 1 - GENERAL

1.1 SECURITY PROGRAM

A. The CONTRACTOR shall:

1. Protect WORK, existing premises and OWNER's operations from theft, vandalism, and unauthorized entry.
2. Coordinate security with OWNER's operations at job mobilization.
3. Maintain program throughout construction period until OWNER's occupancy.

1.2 ENTRY CONTROL

A. The CONTRACTOR shall:

1. Control entry of persons and vehicles onto Project construction site and existing facilities.
2. Allow entry on the construction site only to authorized persons with proper identification.
3. Coordinate access of OWNER's personnel to site in coordination with CONTRACTOR's security forces.

B. OWNER will control entrance of persons and vehicles related to OWNER's operations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01530 - PROTECTION AND RESTORATION OF EXISTING FACILITIES

PART 1 - GENERAL

1.1 GENERAL

A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.

B. All utility locates shall be the responsibility of the CONTRACTOR. CALL DIAL BEFORE YOU DIG for locates of all underground utilities within the WORK limits prior to any work.

C. The CONTRACTOR shall verify the exact locations and depths of all utilities and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's WORK. Any utility or service in conflict with the WORK will be reburied by the CONTRACTOR prior beginning the WORK to avoid damage.

D. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

1.2 RIGHTS-OF-WAY

A. The CONTRACTOR shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, cable television, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the ENGINEER that the OWNER has secured authority therefore from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the WORK. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted.

B. No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in Article 15 of the General Conditions of the contract.

1.3 PROTECTION OF SURVEY MONUMENTS, STREET AND/OR ROADWAY MARKERS

A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey monuments, markers or points disturbed by the CONTRACTOR shall be accurately re-established, at the CONTRACTOR's expense unless provided for elsewhere in the contract, after all street or roadway resurfacing has been completed. Re-

establishment of all survey monuments shall be by a Registered Alaskan Land Surveyor.

1.4 RESTORATION OF PAVEMENT

A. General: All paved areas, including asphalt concrete berms, cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.

B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.

C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.

D. Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private roads have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

1.5 EXISTING UTILITIES AND IMPROVEMENTS

A. General: The CONTRACTOR shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.

B. Utilities to be Moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.

C. Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or

relocate such utility or improvement in a manner satisfactory to the ENGINEER and the owner of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.

D. OWNER's Right of Access: The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this contract.

E. Underground Utilities Indicated: Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the CONTRACTOR.

F. Underground Utilities Not Indicated: In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the ENGINEER. If directed by the ENGINEER, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in Articles 10, 11, and 12 of the General Conditions.

G. All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the WORK which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of Articles 10, 11, and 12 of the General Conditions.

H. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.

I. Maintaining in Service: All oil and gasoline pipelines, power, and telephone, cable television or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the ENGINEER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

1.6 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

A. General: The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs outside the limits of clearing and grubbing, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a

certified tree company under permit from the jurisdictional agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.

B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.

C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the OWNER if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at its own expense. The tree shall be of a like size and variety as the tree damaged, or, the CONTRACTOR shall pay to the owner of said tree a compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or OWNER.

1.7 PROTECTION OF EXISTING STRUCTURES

A. Compaction Equipment and Operations: The CONTRACTOR shall restrict its compaction operations as necessary to assure no damage occurs to adjacent buildings. This may require the use of smaller compaction equipment than is usually employed for trench backfill and roadway embankment compaction operations when in the vicinity of buildings sensitive to vibrating or other impact-type activities. It shall be the CONTRACTOR's responsibility to determine in which areas of the project the compaction operations must be restricted, to avoid damage to existing buildings. The CONTRACTOR is advised that some structures on the project, especially those founded on steep or unstable ground, and are especially sensitive to vibrations caused by heavy construction equipment. The foregoing restrictions on the size of, and magnitude of impact energy exerted by, compaction equipment will in no way relieve the CONTRACTOR from the compaction requirements as specified in other Sections of the contract.

B. The CONTRACTOR shall notify all affected businesses and other residents in advance of any operations that will cause vibrations that may damage belongings within the buildings. All property damage caused by the CONTRACTOR’s operations shall be repaired or replaced at CONTRACTOR’s expense.

PART 2 PRODUCTS – (Not Used)

PART 3 EXECUTION - (Not used)

END OF SECTION

SECTION 01550 - SITE ACCESS AND STORAGE

PART 1 - GENERAL

1.1 HIGHWAY LIMITATIONS

The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

1.2 TEMPORARY CROSSINGS

(Not Used)

1.3 MEDICAL CAMPUS ACCESS

A. Access to the medical campus must be maintained during construction via the access road from Wood Street. No utility improvements or earthwork shall be started on the access road until the Etolin Street roadway is completed for access.

B. The Etolin Street roadway section must be fully in place, compacted and capable of withstanding HS-20 vehicle loads before commencement of Wood Street access road utility work.

1. 4 MAINTENANCE OF TRAFFIC

A. General: Unless otherwise provided, existing roadways shall be kept open to all traffic by the CONTRACTOR. Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. The CONTRACTOR shall provide unimpeded access through the Project limits for emergency vehicles and make every effort to provide minimum delay to United States Postal Service vehicles and garbage collection vehicles.

B. The CONTRACTOR shall submit three (3) copies of a traffic control plan to the ENGINEER for approval a minimum of two (2) weeks prior to construction. The ENGINEER reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense.

C. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where so provided on the plans or otherwise approved by the ENGINEER, the CONTRACTOR may by-pass traffic over a detour route. When no longer required, the detour shall be removed and the approached obliterated.

D. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.

E. The CONTRACTOR's equipment shall stop at all points of intersection with the traveling public unless satisfactory traffic control measures, approved in writing by the ENGINEER, are installed and maintained at CONTRACTOR's expense.

F. When the CONTRACTOR is required to maintain traffic through grading, roadway excavation and embankment areas, the construction shall be conducted in such a manner as to provide a reasonably smooth and even surface satisfactory for use by public traffic at all times. The surface of the roadbed shall be properly crowned for drainage. In advance of other grading operations, sufficient fill shall be placed at culverts and bridges to permit traffic to cross unimpeded. Part width construction techniques shall be employed when the traffic is routed through roadway cuts or over embankments under construction. The material shall be excavated or placed in layers and the construction activities shall be alternated from one side to the other, with traffic routed over the side opposite the one under construction.

G. During the removal and laying of culvert pipe, a maximum time of one hour of road closure may be permitted, providing the removal and laying of the culvert pipe cannot be completed for one-half width of the roadway and provided that a detour cannot be constructed around the culvert being laid. Closure shall be scheduled so as not to delay buses and peak hour traffic. The CONTRACTOR shall post, at the site of the closure within view of the waiting public traffic, the time the closure started and the time the road will again be open to traffic. The CONTRACTOR shall notify the Fire and Police Departments of such closures prior to commencement of work.

H. At intervals of 48 hours and 24 hours prior to start up of construction operations, and at weekly intervals during the construction period, the CONTRACTOR shall advertise at Borough Assembly the precise location, time of commencement, and proposed completion date of the WORK scheduled for the following week which will require detouring or otherwise effect public traffic. Detours shall be described in sufficient detail to efficiently inform the traveling public of the modified traffic pattern. The cost of these advertisements shall be considered incidental to other contract bid items. The CONTRACTOR will notify the property owners 24 hours prior to commencement of WORK.

I. When, in the opinion of the ENGINEER, conditions are such that the safety and/or convenience of the traveling public are adversely affected, the CONTRACTOR will be immediately notified in writing. The notice will state the defect(s) and the corrective action(s) required. In the event that the CONTRACTOR neglects to take immediate corrective action, the ENGINEER may suspend all work on the project until satisfactory corrective action is performed. In the event the CONTRACTOR does not take corrective action within 24 hours, the ENGINEER may order such work as deemed necessary for public convince and safety accomplished by outside forces. The cost of this work shall be deducted from any monies due or that may become due under the terms or the contract.

J. The CONTRACTOR shall bear all expense of maintaining the traffic over adjacent existing roads, including dust control and snow plowing, and of constructing and maintaining such approaches, crossings, intersections, and other features as may be necessary, without direct compensation, except as provided below:

1. Special Detours. When the proposal contains a bid item for detours, the payment for such item shall cover all cost of constructing and maintaining such detour or detours, including the construction of any and all temporary bridges and accessory features and the removal of the same, and obliteration of the detour road. Right-of-way for temporary highways or bridges will be furnished by the OWNER.

2. Maintenance of Traffic during Suspension of WORK. The CONTRACTOR shall make passable and shall open to traffic such portions of the Project and temporary roadways as may be agreed upon between the CONTRACTOR and the ENGINEER for the temporary accommodation of necessary traffic during the anticipated period of suspension. If the suspension is seasonal (winter shutdown), thereafter, and until an issuance of an order for the resumption of construction operations, the maintenance of the temporary route of line of travel agreed upon will be the responsibility of the OWNER. Prior to the OWNER accepting the Project for winter shutdown, the CONTRACTOR shall do all work necessary to provide a roadway surface and subgrade that will not require the OWER to perform additional maintenance work during the shutdown period, except for purpose of snow removal. If the WORK is suspended due to unfavorable weather, failure of the CONTRACTOR to correct conditions unsafe for the workers or the general public, failure to carry out provisions of the contract, or for failure to carry out orders of the ENGINEER, all costs for maintenance of traffic during the suspended period shall be borne by the CONTRACTOR. When WORK is resumed, the CONTRACTOR shall replace or renew any WORK or materials lost or damaged because of temporary use of the project; shall remove, to the extent directed by the ENGINEER, any WORK or materials used in the temporary maintenance; and shall complete the Project as though its prosecution had been continuous and without interference.

K. Traffic Control: All locations requiring redirection or stopping of the traveling public shall be properly signed and/or flagged by the CONTRACTOR. For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, flaggers and provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," (MUTCD) published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1) with the current State of Alaska supplements.

L. The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.

M. Special pedestrian detours are often necessary in areas adjacent to new construction or demolition of existing structures. The ENGINEER shall determine when walkways are required. Plans for walkways must be approved by the ENGINEER.

N. The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.

O. Temporary Street Closure: If closure of any street is required during construction, the CONTRACTOR shall apply in writing to the City& Borough of Wrangell Public Works Department and Alaska Department of Transportation and Public Facilities and any other jurisdictional agency at least 30 days in advance of the required closure and again at 48 hours. A Detour and Traffic Control Plan shall accompany the application.

P. The CONTRACTOR shall notify the Police and Fire Departments and any other affected agency of all planned street closures. Notification shall consist of giving the time of

commencement and proposed date of completion of work and names of street, schedule of operations, and routes of detours. Such notification shall be given at least 48 hours before such closure is to take effect.

Q. Temporary Driveway Closure: The CONTRACTOR shall maintain access to all residential, commercial and street approaches. Any temporary closures shall require prior approval by the ENGINEER. The CONTRACTOR shall notify the owner or occupant (if not owner-occupied) of the closure of the driveways to be closed more than one (1) eight-hour work day at least three (3) working days prior to the closure. The CONTRACTOR shall minimize the inconvenience and minimize the time period that the driveways will be closed. The CONTRACTOR shall fully explain to the owner/occupant how long the work will take and when closure is to start.

R. On-Site Cellular Phones: The CONTRACTOR shall maintain one active cellular phone at the project site at all times with the phone number provided to the City of Wrangell Fire, Police and Public Works Departments. The cellular phone shall be carried by the person in charge of the field operations. The CONTRACTOR shall provide and allow the use of the CONTRACTOR's radio frequency to facilitate communication between the CONTRACTOR and the ENGINEER.

1.5 CONTRACTOR'S WORK AND STORAGE AREA

A. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK.

B. Should the CONTRACTOR find it necessary to use any additional land for its camp or for other purposes during the construction of the WORK, it shall provide for the use of such lands at its own expense.

C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.

1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: **Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive**. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.
2. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.
3. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the site.
4. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
5. The separate storage area shall be inspected by the ENGINEER prior to construction of the area, upon completion of construction of the area, and upon cleanup and removal of the area.
6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

1.6 PARKING

A. The CONTRACTOR shall direct its employees to park in areas as directed by the ENGINEER.

B. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01560 - TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 - GENERAL

1.1 DUST ABATEMENT. The CONTRACTOR shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The CONTRACTOR shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the CONTRACTOR is relieved of further responsibility by the ENGINEER.

1.2 RUBBISH CONTROL. During the progress of the WORK, the CONTRACTOR shall keep the site of the WORK and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The CONTRACTOR shall dispose of all rubbish and waste materials of any nature occurring at the WORK site, and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

1.3 SANITATION

A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.

B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ENGINEER and in accordance with all laws and regulations pertaining thereto.

1.4 CHEMICALS. All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer. In addition, see the requirements set forth in paragraph 6.11 of the General Conditions.

1.5 CULTURAL RESOURCES

A. The CONTRACTOR's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and 36 CFR 800 which provides for the preservation of potential historical architectural, archaeological, or cultural resources (hereinafter called "cultural resources").

B. The CONTRACTOR shall conform to the applicable requirements of the National Historic Preservation Act of 1966 as it relates to the preservation of cultural resources.

C. In the event potential cultural resources are discovered during subsurface excavations at the site of construction, stop work immediately and notify the ENGINEER.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01570 - EROSION CONTROL

PART 1 - GENERAL

1.1 THE REQUIREMENT

A. The CONTRACTOR shall provide for erosion control during construction. All sedimentation from on-site drainage shall be caught on-site.

B. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to construct and maintain erosion control works; including but not limited to, silt fences, settling ponds, hay or straw bale check dams, ditches, etc.

1.2 SUBMITTALS

A. Storm Water Pollution Prevention Plan.

PART 2 - PRODUCTS

2.1 MATERIALS. Materials shall be suitable for the intended use and perform effectively to control silt and surface erosion. All materials shall remain the property of the CONTRACTOR.

A. POLYETHYLENE SHEETING. Clear plastic covering shall meet the requirements of NIST voluntary product standard PS 17-69, for polyethylene sheeting having a maximum thickness of 10 mils.

B. STRAW MULCHING. Straw Mulching shall be in an air dried condition free of noxious weeds, seeds, and other materials determined to be plant life. Hay is not acceptable. Straw mulch shall be suitable for spreading with mulch blower equipment.

C. CONSTRUCTION ENTRANCE ROCK. Construction entrance rock shall be Class I Riprap per ADOT&PF section 611-2.01.

PART 3 - EXECUTION

3.1 PREPARATION

A. Stormwater Pollution Prevention Plan

1. Prepare and submit NOI in accordance with Alaska DEC requirements

2. Prepare temporary construction SWPPP plan in accordance with Alaska DEC requirements

B. Protection:

1. Survey limits of Work to install silt fence.

2. Protect and maintain existing utilities that are to remain.

3. Protect plant life, lawns, and other features remaining as a portion of final landscaping or interim erosion control.

4. Protect benchmarks, property corners, horizontal control, existing structures, sidewalks, railings, paving, and curbs.

5. Reference survey monuments and benchmarks, property corners, and survey control points that may be disturbed by work.

6. Protect pavement or paved areas intended to remain from damage.

7. Perform any demolition, clearing, or other work required to installing erosion control.

8. Re-establish benchmarks, monuments and property corners disturbed as part of construction.

3.2 CONSTRUCTION

A. Polyethylene (PE) Sheeting:

1. Overlap joints minimum 28 inches. Overlap in direction of drainage and prevent water from draining onto material being protected.

2. Secure sheeting in place to prevent movement and damage.

3. Provide sandbags at 2.5 feet spacing and tie the sand bags together with rope on slopes greater than 3:1.

4. Minimize driving stakes through plastic.

B. Mulch:

1. Mulch exposed soils not protected by other means with straw mulching. Provide continuous covering minimum 2 inches thick.

3.3 ADJUSTMENTS AND REVISIONS

A. Adjust or move temporary swales, berms, pipes, culverts, and silt fences as necessary during construction.

3.4 PROTECTION AND MAINTENANCE

A. Protection:

1. No water from construction activities shall be allowed to discharge into the existing or realigned fish stream.

2. Where possible, maintain natural vegetation for silt control.

3. Stabilize all slopes, cuts, or fill areas where Work has stopped for more than 30 days by covering with polyethylene sheeting, or other method to prevent erosion and sediment transport.

4. Keep all off-site parking areas and streets clean from construction activities. Paved surfaces shall be kept clean using mechanical sweeping equipment, hand shovels and brooms, or other accepted methods suitable of removing dirt, rock, silt, and sand. No street washing will be allowed.

B. Maintenance:

1. Monitor and maintain erosion control measures. Remove accumulation of sediment when more than 50 percent of silt storage capacity is filled.

2. Maintain all temporary erosion control facilities until need for each facility has been replaced by other stabilization methods and Engineer authorizes removal.

3. Inspect and repair temporary erosion control facilities. Inspect entire system to ensure proper operation a minimum of once per week, during and after storms, and before weekends and holidays.

4. Inspect public streets on a daily basis and clean as needed or directed by the Engineer.

3.5 CLEAN-UP

A. Obtain Engineer approval for final removal of erosion control.

B. Remove erosion control measures after permanent erosion control is complete and risk for silt erosion and silt laden runoff is past.

C. Restore site improvements to remain.

END OF SECTION

SECTION 01600 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 GENERAL

A. The word "Products," as used herein, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the WORK.

1.2 QUALITY ASSURANCE

A. Source Limitations: To the greatest extent possible for each unit of WORK, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.

B. Compatibility of Options: Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected. Compatibility is a basic general requirement of product/material selections.

1.3 PRODUCT DELIVERY/STORAGE/HANDLING. The CONTRACTOR shall deliver, handle, and store products in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, the CONTRACTOR shall ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

1.4 TRANSPORTATION AND HANDLING

A. Products shall be transported by methods to avoid product damage and shall be delivered in undamaged condition in manufacturer's unopened containers or packaging.

B. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.

C. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.

1.5 STORAGE AND PROTECTION

A. Products shall be stored in accordance with manufacturer's written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather-tight climate controlled enclosures and temperature and humidity ranges shall be maintained within tolerances required by manufacturer's written instructions.

B. For exterior storage of fabricated products, they shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.

C. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.

D. Storage shall be arranged in a manner to provide access for maintenance and inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.

1.6 MAINTENANCE OF STORAGE

A. Stored products shall be periodically inspected on a scheduled basis. The CONTRACTOR shall maintain a log of inspections and shall make said log available to the ENGINEER on request.

B. The CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements.

C. The CONTRACTOR shall verify that manufacturer-required environmental conditions are maintained continually.

D. The CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes does not occur.

E. For mechanical and electrical equipment, the CONTRACTOR shall provide a copy of the manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.

F. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to acceptance by the OWNER in accordance with the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01700 - PROJECT CLOSE-OUT

PART 1 – GENERAL

1.1 FINAL CLEAN-UP. The CONTRACTOR shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final clean-up of the project site.

1.2 CLOSEOUT TIMETABLE. The CONTRACTOR shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ENGINEER, and their authorized representatives sufficient time to schedule attendance at such activities.

1.3 FINAL SUBMITTALS. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the ENGINEER for transmittal to the OWNER:

1. Written guarantees, where required.
2. Maintenance stock items; spare parts, special tools, where required.
3. Completed record drawings.
4. Certificates of inspection and acceptance by governing agencies having jurisdiction.
5. Releases from all parties who are entitled to claims against the subject Project, property, or improvement pursuant to the provisions of law.
6. Completed Certificate of Compliance and Release for all contractors involved in the WORK. Submit the original signed document to the OWNER's Project Manager.

1.4 MAINTENANCE AND GUARANTEE

A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in Article 13 of the General Conditions.

B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the CONTRACTOR shall have obtained a statement in writing from the affected private owner or public agency releasing the OWNER from further responsibility in connection with such repair or resurfacing.

C. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the WORK and the CONTRACTOR and his surety shall be liable to the OWNER for the cost thereof.

1.5 BOND. The CONTRACTOR shall provide a bond to guarantee performance of the provisions contained in Paragraph "Maintenance and Guarantee" above, and Article 13 of the General Conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01704 - FINAL CLEAN-UP AND SITE RESTORATION

PART 1 - GENERAL

1.1 DESCRIPTION. The WORK under this Section includes providing all supervision, labor, materials, tools and equipment necessary for final clean-up and restoration of all areas disturbed by construction activities, to a condition equal to, or better than, before construction started. This does not include clean-up or restoration incidental to, or directly provided for by, other construction items.

PART 2 - PRODUCTS

2.1 MATERIALS. Any materials required shall conform to the appropriate Section of these Specifications.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. The CONTRACTOR shall clean up all sites disturbed during construction of the project. This includes removal of all construction equipment, disposal of all excess materials, disposal of all rubbish and debris, removal of all temporary structures, and grading of the sites so that no standing water is evident.

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02201 – AS-BUILT SURVEYS

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work under this Section includes providing all labor, materials, tools and equipment necessary to provide surveys (does not include construction surveys) for the verification of the Etolin Street ROW, generating as-built drawings and preparation of legal descriptions and recording utility easements.

B. Work must be performed under the responsible charge of a Professional Land Surveyor as required under AS 08.48.

PART 2 – PRODUCTS (not used)

PART 3 - EXECUTION

3.1 ETOLIN STREET ROW

A. Locate and verify the Etolin Street ROW

B. Slope stake the new Etolin Street extension and determine if any slope stakes are outside the ROW not indicated on the Plans

C. Provide Engineer with submittal documentation point out any irregularities of slope stake locations and the Plans

3.2 AS-BUILTS AND UTILITY EASEMENTS

A. Perform as-built surveys of all utilities, fill and cut slopes, and road surface.

B. Locate a 20-foot wide utility easement for water and sewer on the as-builts on the hospital and the clinic sites.

C. Prepare as-built drawings with utility easement, provide legal description for utility easement and prepare required exhibits.

D. Submit required documentation for recording utility easement and provide final recorded drawing and documentation

END OF SECTION

SECTION 02202- EXCAVATION AND FILL

PART 1 - GENERAL

1.1 DESCRIPTION. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for clearing and grubbing and excavation and embankment construction to the lines, grades and cross sections indicated in the Plans or as directed by the ENGINEER.

1.2 Submittals- Geotextile.

PART 2 - PRODUCTS

2.1 UNSUITABLE EXCAVATION. Any excavated material not meeting the definition of Shot Rock Class B including all organic materials, peat, clays and other deleterious materials shall be unsuitable excavation. All unsuitable excavation shall be disposed off site at the designated disposal site (see Plans).

2.2 FILL- Where specified on the design drawings, fill shall be defined as class B shot rock borrow. Class B shot rock borrow shall consist of blasted quarry rock, consist of well-graded 12 inch minus pit run shot rock having no more than 6% passing the No. 200 sieve as determined by that portion of a sample passing the 3-inch screen. Material shall not consist of predominantly all one size or an open graded mix but rather a uniform grading of shot rock material smaller than 12 inch in size. Fill may be obtained from an onsite source or City pit as designated on the plans.

2.3 SUITABLE EXCAVATION. Excavation shall be considered suitable where it meets the criteria for Shot rock class B.

2.4 GEOTEXTILE. Geotextile shall meet AASHTO M288 for separation except shall provide permittivity = 0.05 sec^{-1}.

PART 3 – EXECUTION

3.1 CLEARING AND GRUBBING

A. Delineate extent of clearing with flagging and survey markers.

B. Cut and dispose of all trees, down timber, brush and debris. Fall trees toward the center of area to be cleared to avoid disturbances to standing trees.

C. All timber, wood debris and stumps shall be properly disposed of by the Contractor. Disposal methods may include but not be limited to salvage of any marketable timber, and/or offsite disposal of wood debris in accordance with local requirements. Wood debris may not be disposed of at the City monofil site.

3.2 UNSUITABLE EXCAVATION

A. Verify clearing and grubbing has been completed.

B. Contractor shall excavate to competent subgrade beneath the roadway prism. The entire layer of peat overburden shall be removed and disposed at City provided disposal site. Excavate until granular materials free of organics are encountered.

C. Excavations shall be protected from erosion and maintained to drain freely at all times and ENGINEER shall approve final extent of overburden removal.

D. Perform payment survey.

3.2 EMBANKMENT

A. Embankments shall be constructed to a reasonably smooth and uniform shape conforming to the lines, grades and cross sections indicated on the Plans or as directed by the ENGINEER.

B. The competent subgrade shall be properly prepared with geotextile placed prior to placing embankment material. Clearing and grubbing in embankment areas must be completed prior to embankment operations. Debris shall be removed and surface depressions or holes shall be filled with suitable material to a level uniform surface and compacted before the embankment is constructed.

C. Shot Rock shall not be dumped in final position but shall be deposited on the fill and distributed by blading or dozing so that voids, pockets and bridging will be reduced to a minimum. Intervening spaces and interstices shall be filled with smaller stones and earth to form a dense, well-compacted embankment. Hauling equipment shall be uniformly routed over the entire width of the embankment.

D. For embankments constructed with Class B Shot Rock Borrow, place in 18” maximum lifts. Compaction shall be accomplished by a minimum level of compactive effort consisting of 6 complete coverage passes with a 10-ton vibratory steel drum roller suitably equipped by the manufacturer for compacting shot rock materials.

E. The finish subgrade surface and surface following Site Grading shall not vary more than 0.1-foot when tested using a 10-foot straightedge, nor more than 0.1-foot from established grade. Additionally, the algebraic average of all deviations from established finished subgrade elevations taken at 100-foot intervals shall be less than 0.05-foot.

F. Shot rock larger than 12 inches in diameter but not more than 18 inches in diameter may be placed in roadway fill sections at a distance greater than two feet from utilities and greater than two feet from the roadway surface. Material meeting the criteria of shot rock class B must be used when within 2 feet of utilities of the roadway surface.”

3.3 SUITABLE EXCAVATION

A. Excavated material shall be reused as embankment fill when it meets the criteria of shot rock class B as described in part 2. 3

B. Contractor shall perform all excavation necessary to install the utilities and road prism as shown on the drawings. Additional material shall be excavated by benching into the rock face on the north side of the medical campus roadway, as shown on the plans; only if more fill is needed to balance the job. The exact limits of bedrock and therefore the quantity of suitable excavation are not known.

C. Blasting shall not be performed within 150’ of adjacent houses or structures.

D. Blasting to be performed at the medical campus area shall comply with all requirements of ADOT&PF Section 203-3.02.

E. Excavations shall be reasonably smooth and uniform to the lines, grades and cross sections shown in the Plans or as directed by the ENGINEER. Excavations shall be conducted to insure that material outside of excavation limits remains undisturbed.

F. Excavations shall be protected from erosion and maintained to drain freely at all times.

F. If the CONTRACTOR fails to comply with the provisions of any city ordinance or permit pertaining to waste disposal or disposal sites; the OWNER shall have the right, after giving 30 days written notice, to bring the disposal sites into compliance and collect the cost of the work from the CONTRACTOR, either directly or by withholding monies otherwise due under the Contract.

G. Temporary storage of excavated materials is the responsibility of the CONTRACTOR. Use the stockpile area designated on the plans and comply with the requirements of 01550-Site access and Storage.

H. Surplus material obtained from suitable excavation shall be hauled to the City pit, shown on the plans as “material source”.

H. The CONTRACTOR shall conduct all operations to prevent contaminating useable excavation with unsuitable material.

I. When frozen material is excavated and meets all other requirements for embankment material, it shall be allowed to thaw and drain prior to placing in the embankment. This material will be considered useable excavation and no additional payment will be made.

J. The CONTRACTOR shall provide added care including bracing and shoring as required when excavating adjacent to existing retaining walls, fences and buildings. Damage caused to existing walls, fences and buildings by the CONTRACTOR shall be repaired at the CONTRACTOR's expense. “

3.4 CITY PROVIDED ROCK QUARRY

A. Comply with attached City of Wrangell quarry use plan (see Appendix A).

3.5 FIELD QUALITY CONTROL

A. Comply with Section 01400.

B. Compaction Testing: Proof roll placed embankment fill with loaded dump truck before placing any base course material.

END OF SECTION

SECTION 02203 – TRENCHING AND BACKFILLING

PART 1- GENERAL

1.1 GENERAL

A. The WORK under this section includes providing all labor, materials, tools and equipment necessary for the excavation and backfill required for installation of utility piping, and other appurtenances; shoring, bedding and insulation board.

1.2 SUBMITTALS

A. Pipe bedding material.

B. Insulation Board

PART 2- PRODUCTS

2.1 TRENCH EXCAVATION

A. Trench excavation shall consist of all material, of whatever nature, including bedrock excavated from trenches or below structures within the limits described indicated in the plans.

B. Shallow bedrock is anticipated at several locations throughout the project as shown on the plans. Trenching in bedrock is to be avoided from STA 0+00 to STA 1+50 because of potential disturbance to adjacent property owners. A shallow, insulated, utility trench detail shall be used in this area. Coordinate limits with ENGINEER. From STA 1+50 to end of project, excavation in rock shall be performed to the grades specified on plans. No additional compensation for bedrock encountered during trenching will be made.

2.2 BEDDING

A. Pipe bedding material shall be per AWWA type 4 or 5 and have aggregate conforming to the following gradation:

SIEVE SIZE	% PASSING BY WEIGHT
1 1/2-Inch	100
No. 4	0-35
No. 200	0-10

2.3 BACKFILL

A. Imported or onsite Backfill shall consist of material meeting the requirements of Shot Rock Borrow Class B as specified under Section 2202 – Excavation and Embankment.

2.4 PORTLAND CEMENT CONCRETE

A. Portland cement concrete shall conform to that specified in Section 03302-Minor

Concrete Structures.

2.5 INSULATION BOARD

A. Insulation board shall be 2 inches thick, DOW Highload 60 or approved equal.

PART 3- EXECUTION

3.1 EXCAVATION

A. Prior to excavating trenches, all necessary clearing, grubbing, and overburden removal shall be completed in accordance with the provisions of Section 02201-Excavation and Embankment.

B. Excavation for trenches shall conform to the lines and grades shown on the plans. The CONTRACTOR shall also do any grading necessary to prevent surface water from entering the trench.

C. Excavation of any and all material more than two feet below the invert of a pipe or structure or as shown on the plans shall be done only when necessary to remove required overburden or ordered in writing by the ENGINEER. The material so excavated will be handled in the manner described below.

D. All excavated material suitable for use as backfill shall be piled in an orderly manner separately from unsuitable material, at a sufficient distance from the edge to prevent material from sloughing or sliding back into the trench; except that when the trench is in a traveled roadway the ENGINEER may require removal and temporary storage of excavated material elsewhere.

E. Material unsuitable for use as backfill shall be hauled to a CONTRACTOR furnished disposal site off the project or shall be disposed within the confined disposal area on site, unless otherwise directed in writing by the ENGINEER. The CONTRACTOR is responsible for securing waste disposal sites if none are indicated on the plans. The CONTRACTOR shall obtain the written permission of the landowner for use of all disposal sites, and shall either obtain any required permits or assure that they have been obtained by others. If requested by the ENGINEER, the CONTRACTOR shall furnish the permit numbers of all required permits for the disposal sites. The cost of securing such sites shall be borne by the CONTRACTOR.

F. If the CONTRACTOR fails to comply with the provisions of any city ordinance or permit pertaining to waste disposal or disposal sites; the OWNER shall have the right, after giving 30 days written notice, to bring the disposal sites into compliance and collect the cost of the WORK from the CONTRACTOR, either directly or by withholding monies otherwise due under the Contract.

G. No more than 150 feet of trench shall be open in advance of laying of pipe, and not more than ten feet of trench shall remain open at the end of each working period. When the trench is in a traveled roadway, it shall be completely backfilled, in accordance with the Specifications, and opened to traffic at the end of each working period.

H. Explosives will not be used unless approved by the ENGINEER. If explosives are used, the CONTRACTOR shall obtain all necessary permits and comply with all pertinent regulations. All utility companies shall be informed a minimum of 48 hours prior to the use of explosives in the vicinity of their facilities.

I. The CONTRACTOR shall protect and preserve all existing pavement throughout the entire construction period. No tracked equipment may be operated on any pavement without first protecting the pavement with pavement pads approved by the ENGINEER. All pavement which is damaged in any manner by the CONTRACTOR's operations shall be restored to original or better condition at the CONTRACTOR's expense.

J. Where required to prevent caving of the trench, or by any safety law or regulation, the CONTRACTOR shall furnish and install bracing and/or sheeting to protect the excavation. This bracing and/or sheeting shall be removed as trench backfill progresses.

K. The CONTRACTOR shall remove and dispose of all water entering the excavation. Disposal of water shall be done in a manner to prevent damage or nuisance to adjacent property, and in accordance with all applicable laws and regulations. Pumps shall be adequate to maintain a dry trench during the bedding, pipe installation, and initial backfill to an elevation at least one foot above the top of pipe. No backfill may be placed in standing water under any circumstance, except when the plans and/or Specifications specifically permit installation of HDPE water pipe in a wet trench.

L. Excavations for manholes and similar structures shall be large enough to provide proper working room. Any over depth excavation shall be backfilled with concrete or other approved material at the CONTRACTOR's expense.

M. The CONTRACTOR shall provide temporary support of existing structures, as necessary to protect the structures from settlement or other disturbances caused by construction activities. All structures disturbed by the CONTRACTOR's activities shall be returned to original condition, or better.

3.2 BEDDING

A. Bedding shall be placed in conformance with the lines and grades shown on the plans. Before placing any bedding material, the bottom of the trench shall be hand-raked ahead of the pipe laying operation to remove stones and lumps which will interfere with smooth and complete bedding of the pipe. The specified bedding material shall then be placed in layer(s) the full width of the trench, each layer not exceeding eight inches in thickness loose measure, and compacted to 95% of maximum density as determined by AASHTO T 180 D, until the elevation of the plan grade for the pipe invert is attained. The pipe bed shall then be fine-graded by hand and compacted as above. Bell holes shall be hand dug at the location of the joints and shall be of sufficient size to allow proper making of the joint and to prevent the collar or bell of the pipe from bearing on the bottom of the trench.

B. After the pipe has been laid and approved for covering, the specified bedding material shall be placed evenly on both sides of the pipe for the full width of the trench. Approval for covering does not imply final acceptance of the pipe, or relieve the CONTRACTOR in any way of responsibility to complete the project in conformance with the plans and Specifications. Bedding material shall be placed by hand in layers. The thickness, loose

measure, of the first layer shall be either one-half the outside diameter of the pipe plus two inches or eight inches, whichever is least. This layer shall be compacted as specified above to provide solid support to the underside of the pipe. For pipe ten inches and smaller nominal diameter, the next layer shall be of the thickness required to complete placement of the bedding to a plane six inches above the pipe, after compaction as specified above.

C. For pipe twelve inches and larger, the bedding material shall be placed and compacted in layers not more than eight inches in thickness, loose measure, up to a plane six inches above the top of the pipe.

D. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material retested until the tests show that the compaction meets the specification requirements. All tests, after the initial test at any given location, shall be paid for by the CONTRACTOR.

E. Upon completion of bedding placement, insulation must be placed over sewer and water pipes where 5’ cover cannot be achieved where directed in plans

3.3 BACKFILL

A. The trench shall be backfilled above the bedding material, as shown on the plans, with shot rock borrow Class B. The backfill and/or suitable material from roadway excavation shall be compacted as described in Section 02202– Excavation and Embankment. Lifts shall not exceed 18 inches in depth for loose material. After backfilling of the trench is completed, any excess material from trench excavation shall be hauled to a CONTRACTOR furnished disposal site off the project.

B. Where trenches cross roadways, streets or driveways, backfilling shall be done immediately following excavation and laying of the pipe. All crossings shall be backfilled, compacted, and open to traffic at the end of each day’s WORK. Major road crossings shall be excavated and backfilled in half widths of the traveled way so that at least one-half of the roadway is open to controlled traffic at all times during the WORK. All WORK performed within a right-of-way shall be done in conformance with the appropriate permits issued by the respective agency having jurisdiction over the right-of-way.

C. At least 24 hours prior to commencing backfilling operations, the CONTRACTOR shall notify the ENGINEER of the proposed method of compaction. No method will be approved until the CONTRACTOR has demonstrated, under actual field conditions, that such method will produce the degree of compaction required.

D. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material retested until the tests show that the compaction meets the specification requirements. All tests, after the initial test at any given location, shall be paid for by the CONTRACTOR.

3.4 CONSTRUCTION QUALITY CONTROL

A. Comply with Section 01400.

B. Compaction Tests per 02202.

C. Frequency: Minimum testing frequency of 1 per 200 lineal feet of pipe and 1 per pipe run and 1 per structure.

END OF SECTION

SECTION 02204 - BASE COURSE

PART 1- GENERAL

1.1 DESCRIPTION

A. The WORK under this section includes providing all labor, materials, tools and equipment necessary for furnishing and placing one or more layers of aggregate base on a prepared subgrade to the lines and grades shown on the Plans.

1.2 SUBMITTALS

A. C-1 Base Course.

B. D-1 Base Course.

PART 2- PRODUCTS

2.1 MATERIAL

A. Aggregate base course shall consist of crushed gravel or crushed stone, conforming to the quality requirements of AASHTO M 147. The aggregate shall be free from lumps, balls of clay, or other objectionable matter, and shall be durable and sound.

1. Base course shall be sampled according to "WAQTC FOP for AASHTO T2 – Sampling Aggregates" as described in the *Alaska Test Methods Manual*, published by the Alaska Department of Transportation and Public Facilities.

2. Coarse aggregate (that material retained on the No. 4 sieve) shall be crushed stone and shall consist of sound, tough, durable rock of uniform quality. Rock shall be free of schist that cleaves along preferred foliation planes. Rock shall be free of platy mineral grains. Metamorphosed rock shall be free of slaty cleavage. All material shall be free from clay balls, vegetable matter or other deleterious matters. Coarse aggregate shall not be coated with dirt or other finely divided mineral matter. All aggregates shall be free of roots and wood. In addition, coarse aggregate shall meet the following requirements:

Property	**Value**	**Test Method**
L.A. Wear, %	25 max.	AASHTO T 96
Degradation Value	No minimum value	ATM 313
Fracture, %	70 min.	WAQTC FOP for AASHTO TP 61
Sodium Sulfate Loss, %	9 max.	AASHTO T 104

3. Aggregate shall nor exceed eight (8) percent thin -elongated pieces as determined by ATM 306.

4. Fine Aggregate: Fine aggregate (passing the No. 4 sieve) shall meet the quality requirements of AASHTO M 29.

B. Base course material shall conform to one of the following gradations as specified:

BASE COURSE GRADATIONS
(Percent passing by weight)

Sieve Designation	A	B	C	C-1	D	D-1	E	E-1
4	100							
2	85-100	100						
1 1/2				100				
1			100	70-100		100		
3/4				60-90	100	70-100		100
3/8				45-75		50-80		
No. 4	30-60	30-70	40-75	30-60	45-80	35-65		45-80
No. 8				22-52		20-50		32-80
No. l0			25-55		30-65			
No. 40				8-30		8-30		
No. 200	0-6	3-10	4-10	0-6	4-12	0-6	0-6	0-6

C. For gradings C, D, & E, at least 50% by weight of the particles retained on the No. 4 sieve shall have at least one fractured face as determined by Alaska T-4.

D. For gradings A, C-1, D-1 & E-1, at least 70% by weight of the particles retained on a No. 4 sieve shall have at least one fractured face as determined by Alaska T-4.

PART 3- EXECUTION

3.1 CONSTRUCTION

A. Prior to placement of the base course, the underlying surface shall be prepared by dressing, shaping, wetting or drying, and compacting of the underlying material as specified under Section 02202 – Excavation and Embankment. Surfaces shall be cleaned of all foreign substances and debris.

B. Any ruts or soft yielding spots that may appear shall be corrected by loosening and removing unsatisfactory material and adding approved material as required, reshaping, and recompacting the affected areas to the lines and grades indicated on the plans. If required by the ENGINEER, the CONTRACTOR shall proof load questionable areas with a loaded truck or other piece of equipment approved by the ENGINEER.

C. Blue tops shall be set to the top of base course. They shall be set by the CONTRACTOR at breaks in grade and on even grade at intervals not to exceed 50', with additional stakes at vertical curves.

D. Base course material shall be deposited and spread in a uniform layer to the required grades, and to such loose depth that when compacted to the density required, the thickness will be as indicated on the plans. Portions of the layer which become segregated shall be removed and replaced with a satisfactory mixture, or shall be remixed to the required gradation.

E. The maximum compacted thickness of any one layer shall not exceed six inches. If the required compacted depth exceeds six inches, the base shall be constructed in two or more layers of approximately equal thickness. Each layer shall be shaped and compacted before the succeeding layer is placed.

F. The base course shall be compacted to at least 95% of maximum density as determined by AASHTO T 180-D. In places not accessible to rolling equipment, the mixture shall be compacted with hand tamping equipment.

G. Blading, rolling, and tamping shall continue until the surface is smooth and free from waves and irregularities. If at any time the mixture is excessively moistened, it shall be aerated by means of blade graders, harrows, or other approved equipment, until the moisture content is such that the surface can be recompacted and finished as above.

H. The finished surface of the base course, when tested using a 10-foot straightedge, shall not show any deviation in excess of 3/8-inch between two contact points. The finish surface shall not vary more than 1/2-inch from established grade. Additionally, the algebraic average of all deviations from established grade of the finish base course surface elevations taken at 50-foot intervals shall be less than 0.02-foot.

I. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material retested until the tests show that the compaction meets the specification requirements. All tests, after the initial test at any given location, shall be paid for by the CONTRACTOR.

3.2 FIELD QUALITY CONTROL

A. Comply with Section 01400.

B. Compaction Testing: As determined by AASHTO T310 and T224.

C. Tests shall be conducted once for every 200 cubic yards of material placed.

END OF SECTION

SECTION 02401 – SANITARY SEWER SERVICE

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Work under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing force mains, sanitary sewer pipe, pump station, in accordance with these Specifications and in reasonably close conformity with the lines and grades shown on the Drawings or established by the ENGINEER.

B. This Work includes furnishings and installing connecting bands, branch connections, elbows or other fittings, and all appurtenances required to complete the sanitary sewer.

1.2 SUBMITTALS

A. Gravity Sewer Pipe and Manholes: Material certifications stating conformance with the requirements of this Section.

B. Lift station Manhole: Include plans, elevation, section, details, and frames and covers.

C. Lift Station pumps.

D. Operation and maintenance manual for lift station.

E. Force main pipe, fittings, valves and valve boxes.

F. Air vacuum valve.

PART 2 - PRODUCTS

2.1 UNDERGROUND LOCATOR TAPE

A. Underground locator tape shall be green, at least four (4) inches wide, four mil thick, polyethylene tape, with a metallic backing capable of being traced with locators. The tape shall have black letters with the following wording: "Caution: Sewer Line Buried Below." The locator tape shall be installed 12 inches above the top of all sewer mains and services.

2.2 HDPE FORCE MAIN

A. High-Density Polyethylene (HDPE) pipe shall conform to ASTM D3550 designation PE3407 or PE 3408. The pipe shall have a minimum pressure rating of 150 pounds per square inch and a maximum Standard Dimension Ration (SDR) of 9. All HDPE shall have a standard iron pipe size (IPS) outside diameter.

B. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions or other injurious defects. It shall be uniform in color, opacity, density, and other physical properties.

C. HDPE pipe shall have an ASTM D-3350 material Cell Classification of no less than 335434C.

D. The pipe shall be marked at five foot intervals with a coded number which identifies the manufacturer, SDR size, PPI rating, manufacturing standard reference and production code from which data and place of manufacturer can be determined.

E. When HDPE pipe is connected to accessories pipe a flange adapter shall be used. A flange coupling adapter shall be used on accessory, HDPE flange adapters shall be manufactured by the same manufacturer as the pipe using the same resin as the pipe.

F. Connection of the pipe and fittings shall be performed by thermal butt or socket fusion system, In addition brass pack joint fittings may be used when 2" diameter or less. HDPE pipe lengths, fittings, and flange adapter connections to be fused shall be of the same type, grade and class of polyethylene compound and supplied by the same raw material supplier.

G. HDPE to HDPE connections shall be made, in accordance with manufacturer requirements.

H. Bolted HDPE to HDPE connections shall include a polyethylene flange adapter (stub end) butt fused to the pipe, a backup flange ring, bolts, nuts, and a gasket. Flange rings shall be Standard Steel ring Flanges, Class D, in accordance with AWWA C207. High strength bolts, nuts, washers and gaskets shall be in conformance with AWWA C207, Appendix A. Flange rings, bolts, nuts and washers shall be hot dip galvanized after fabrication per ASTM A153 and A386. Gasket dimensions and bolt lengths shall be per pipe manufacturer's recommendations.

I. Brass Ball Valves- 600 psi, threaded connection with 2" operating nut.

J. Valve boxes shall be of cast iron and be not less that 5-1/4 inch diameter, with an extension piece adjustable for elevation. The valve box shall be of sufficient length to be adjusted an equal amount above and below the finished grade as shown on the Standard Details. Boxes shall be dipped in coal tar pitch. The valve box shall be Tyler Pipe 6865 Series or approved equal whose parts demonstrated to be interchangeable with the Tyler Pipe 6865 Series. Valve boxes installed on force main pipes shall have a cover marked "sewer" or "S".

2.3 PVC SEWER PIPING

A. PVC sewer piping shall be solid wall conforming to the requirements of ASTM D 3034 SDR 35 for pipe up to 15 inch diameter and ASTM F 679, Type 1 only, for pipe sizes 18-27 inch diameter.

B. Joints for solid wall PVC pipe shall conform to the ASTM D 3212 using elastomeric gaskets conforming to ASSTM F 477.

C. Fittings for PVC shall be injection molded, factory welded or factory solvent cemented.

2.4 NONPRESSURE-TYPE TRANSITION COUPLINGS

A. Comply with ASTM C1773, elastomeric, sleeve-type, reducing or transition coupling, for

joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve materials for plastic pipes shall be ASTM F477, elastomeric seal or ASTM D 5926, PVC.

C. Coupling for dissimilar sanitary sewer pipes shall ROMAC INDUSTRIES SS1 sewer clamp or approved equal. Gaskets shall be VIRGIN SBR compounded for water and sewer service. Bolts, washers, nuts, lug and shell shall be stainless steel. Connected pipes shall be cut perpendicular and inserted into coupling so that ends are flush.

2.5 LIFT STATION

A. The sewage ejector pump shall be a flight pressure pump Flygt 3" NP 3127SH, rated at a minimum 11.0 H.P, 208 volts, three phase and shall be capable of producing 135 GPM at 102 feet total dynamic head.

B. The pump shall be submersible and designed to pass a minimum 2.5 inch spherical solids. Pumps are to be equipped with thermal overload protection and shall be approved for use in Class 1, Division 2 classified location

2.6 CONCRETE

A. Concrete shall conform to section 03302 – Minor Concrete Structures.

2.7 SEWER MANHOLES

A. Manholes shall be in accordance with ADOT&PF 604-201

2.8 COMBINATION AIR VALVE

A. The combination air vacuum valve shall be a Valmatic single body 201C Combination Air Valve or approved equal.

2.9 FRAMES AND GRATES

A. Castings are to be load rated as indicated on the drawings. If not indicated, load ratings shall be HS-20.

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. Excavation, bedding, and backfill shall conform to the requirements of Section 02203 - Trenching. Underground marking tape shall be installed as shown on the Detail.

B. Sheeting and bracing required for trenches shall be removed to the elevation of the conduit, but no sheeting will be allowed to be pulled, removed, or disturbed below the conduit. Sheeting and bracing shall meet OSHA requirements.

C. Before lowering into the trench, the pipe shall be inspected for defects. All cracked, chipped, or broken pipe shall be discarded. The ends and interior of the pipe shall be clean. Belled ends shall be laid upgrade. Handling of the pipe shall be accomplished in a manner that will not damage the pipe. The joint shall be made in the manner recommended by the manufacturer. Care shall be taken not to buckle or disturb previously laid pipe.

D. Pipe shall be laid accurately to the staked line and grade. All service connections shall be installed as indicated on the Drawings. Where existing service sewers are to be connected, suitable fittings and adapters shall be provided by the CONTRACTOR.

E. Pipe shall be cleaned of all foreign matter, and water shall be kept out of trenches until joints have been completed. When WORK is not in progress, open ends of pipe and fittings shall be securely closed to keep foreign matter and animals from entering.

F. Each joint shall be inspected to ensure that it is properly made before backfilling is done. Care shall be taken to prevent any dirt or foreign matter from entering the open end of the pipe. Where it is necessary to cut pipe, such cuts shall be neatly made in an approved manner. The laid pipe shall be true to line and grade and, when completed, the sewer shall have a smooth and uniform invert. No section of gravity sewer, including service connections shall have an adverse grade which would pond water in the invert of the sewer.

G. Connections to existing sewer mains, service connections, and manholes shall be made in such a manner so as to not damage the existing facility. Such connections shall be made so that no projections or rough surfaces occur within the pipe.

H. Install manholes per ADOT & PF section 604-3.01.

3.2 FILTRATION TEST (USING AIR)

A. The CONTRACTOR shall furnish all facilities and personnel for conducting the test under the observation of the ENGINEER. The equipment and personnel shall be subject to the approval of the ENGINEER. Joints only may be tested in pipe 36 inches in diameter or larger, at the option of the CONTRACTOR.

B. Immediately following the pipe cleaning, the pipe installation shall be tested with low pressure air. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches five pounds per square inch greater than the average back pressure of any ground water that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization before proceeding further.

C. The pipeline shall be considered acceptable when tested at an average pressure of four psi greater than the average pressure of any ground water that may submerge the pipe if the section under test does not lose air at a rate greater than 0.0030 cubic feet per minute per square foot of internal surface.

D. The requirements of this Specification shall be considered satisfied if the time required for the pressure to decrease from 4.5 psi to 3.5 psi above average ground water pressure is greater than that shown on the following table:

TIME FOR PRESSURE TO DROP FROM
4.5 TO 3.5 PSI ABOVE AVERAGE GROUND WATER PRESSURE

Pipe Diameter	Minutes	Seconds
8 "	3	57
10"	4	43
12"	5	40
15"	7	5
18"	8	30
24"	11	20
30"	14	10

E. For other sizes, determine test time using the following formula:

T= 28.33 D
Where T = time in seconds
D = pipe diameter in inches

F. For pipes 36 inches in diameter, or larger, if individual joints are tested, they shall hold six psi air pressure over the average back pressure of any ground water for a minimum time of 15 seconds.

G. Pressure gauges should be incremented in not more than one-half pound increments for accurate tests.

H. Braces shall be required to hold plugs in place and to prevent the sudden release of the compressed air. Due to the large forces that could be exerted by an escaping plug during the testing of the pipe, no one shall be allowed in the manholes in which plugs have been placed while tests are being conducted. The CONTRACTOR's testing equipment shall have a pressure relief device that will prohibit the pressure in the pipeline from exceeding ten pounds per square inch.

END OF SECTION

SECTION 02501 - STORMWATER

PART 1 - GENERAL

1.1 DESCRIPTION

A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing all storm drain pipe, structures and pipe culverts in accordance with the Plans.

1.2 SUBMITTALS

A. Storm Pipe: Material certifications.

B. Porous backfill material gradations.

C. Catch Basins

PART 2 - PRODUCTS

2.1 CORRUGATED POLYETHYLENE PIPE (NON PERFORATED)

A. Corrugated polyethylene pipe (CPP) shall be high density corrugated polyethylene, smooth interior pipe, and shall be manufactured in conformity with the latest AASHTO M-294, Type S.

B. Fittings shall be water tight according to the requirements of AASHTO M252 and AASHTO M294, and gaskets shall meet ASTM F477.

C. Porous backfill material shall be aggregate conforming to the following gradation:

SIEVE SIZE	% PASSING BY WEIGHT
3-Inch	100
1-Inch	0-10
No. 200	0-5

E. All Pipes, to assure water tightness, field performance shall be tested in accordance with ASTM F2487.

2.2 CATCH BASINS

A. Catch basins shall be per ADOT & PF section 604-2.01.

2.3 HIGH DESITY POLYETHYLENE PIPE (PERFORATED)

A. Shall meet AASHTO M252.

2.4 DRAINAGE GEOTEXTILE

A. Shall be per Section 02202.

PART 3 - EXECUTION

3.1 GENERAL

A. Excavation, Bedding, and Backfill shall conform to the requirements of Section 02203 - Trenching. All corrugated pipe shall have a minimum cover of 12 inches.

B. The pipe laying shall begin at the downstream end of the pipe. The lower segment of the pipe shall be in contact with the shaped bedding throughout its full length. Bell or groove ends of rigid pipe and outside circumferential laps of flexible pipe shall be placed facing upstream.

C. Pipe shall be inspected before any backfill is placed. Any pipe found to be substantially out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced.

D. Flexible conduits shall be firmly joined by approved coupling bands.

E. Conduit shall be inspected before any backfill is placed. Any pipe found to be substantially out of alignment, unduly settled, or damaged shall be taken up and relaid or replaced.

F. Installation of all pipes shall conform to the manufacturers' recommended procedures. These Specifications and the plans shall take precedence over the manufacturers' recommendations in the event of conflict, if more restrictive.

G. All storm service pipes to be stubbed out shall be capped and marked with a pressure treated two inch or four inch post extending from the cap to one inch above ground surface with the top six inches painted green.

H. All cut corrugations on CPP pipe shall be cleared of all water and completely grouted to prevent the accumulation of water.

I. Protect storm sewer pipe against erosion at all times during placement operations until completion. Repairs to damaged storm drain pipe shall be made at no additional cost to the OWNER.

J. Install catch basins ADOT & PF section 604-3.01.

END OF SECTION

SECTION 02601 – WATER SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing buried water pipe and water pipe fittings, thrust blocks, tie rods, electrical continuity, disinfection and testing. The CONTRACTOR shall install the water pipe and fittings to the horizontal and vertical alignment shown on the Plans and shall complete all associated WORK described in this Section.

1.2 SUBMITTALS

A. Water Main pipe.

B. Fittings, Valves, hydrants, valve boxes.

C. Water Service connections.

D. Testing and Disinfection Methods.

E. Connection to Existing Main.

F. HDPE Pipe Welder Certifications

G. To verify HDPE pipe weld procedures, submit test results from a sample weld prepared by the weld crews using the bent strap test in accordance with the Plastic Pipe Institute procedures

PART 2 - PRODUCTS

2.1 PIPE

A. HDPE PIPE. High-density polyethylene (HDPE) pipe shall be SDR 9 IPS in accordance with AWWA C906 and NSF 61.

B. GENERAL. All water pipe shall be clearly marked with the manufacturer's name, type, class, and/or thickness as applicable. Lettering shall be legible and permanent under normal conditions of handling and storage.

2.2 FITTINGS

A. HDPE FITTINGS. HDPE fittings shall be SDR 9 IPS in accordance with AWWA C906 and NSF 61.

2.3 CONNECTIONS

A. When HDPE pipe is connected to accessories pipe a flange adapter may be used. A flange coupling adapter shall be used on accessory, HDPE flange adapters shall be manufactured by the same manufacturer as the pipe using the same resin as the pipe.

B. Connection of the pipe and fittings shall be performed by the thermal butt fusion system. HDPE pipe lengths, fittings, and flange adapter connections to be fused shall be of the

same type, grade and class of polyethylene compound and supplied by the same raw material supplier.

2.4 THAW WIRE

A. Thaw wire and continuity straps shall be No. 2 copper wire, stranded, with THW insulation or equal. Exothermic welding to attach continuity straps on DIP and fittings shall be "Cadweld" or approved equal.

2.5 UNDERGROUND LOCATOR TAPE

A. Underground locator tape shall be blue, six-inch wide, 4-mil thick, polyethylene tape with black lettering with the following wording: "Caution: Water Line Buried Below". Locator tape shall be installed twelve inches above the top of all water pipe.

2.6 CONCRETE

A. Concrete for shall conform to Section 03301 – Minor Concrete Structures.

2.7 DOMESTIC WATER ACCESSORIES

A. Gate valves shall be Resilient Seated Gate Valve with bonded epoxy coating, equaling or exceeding the requirements of AWWA C515 and the specific requirements outlined in these Specifications.

B. Corporation stops and service saddles shall be brass.

C. Valve boxes for water system shall be of cast iron and be not less that 5-1/4 inch diameter, with an extension piece adjustable for elevation. The valve box shall be of sufficient length to be adjusted an equal amount above and below the finished grade as shown on the Standard Details. Boxes shall be dipped in coal tar pitch. The valve box shall be Tyler Pipe 6865 Series or approved equal whose parts demonstrated to be interchangeable with the Tyler Pipe 6865 Series. Valve boxes installed on water pipes shall have a cover marked “water” or “W”.

D. Fire Hydrants- Mueller Centurion or approved equal.

E. The curb box shall be of sufficient length to be adjusted an equal amount above and below the finished grade as shown on the Standard Details. Curb box shall be Ford EA2-50-50-42R, or approved equal, with a cover marked “water” or “W”.

PART 3 - EXECUTION

3.1 GENERAL

A. The CONTRACTOR shall preserve and protect all existing utilities and other facilities including but not limited to: telephone, television, electrical, water and sewer utilities, surface or storm drainage, highway or street signs, mail boxes, or survey monuments. The CONTRACTOR shall immediately repair or replace utilities or other facilities damaged during construction. The CONTRACTOR shall support and protect any underground utility conduits, pipes, or service lines where they cross the trench.

B. The CONTRACTOR shall give at least 48 hours notice to the OWNER prior to:

1. needing water or sewer main line locates;

2. interruption of water service in any area; or
3. use of water from any fire hydrant.

Any water service disruption shall be restored as soon as possible. The CONTRACTOR shall notify all local radio stations and any major customers that will be affected of a planned water service disruption.

C. CONTRACTOR and Fabricator to verify all fit-ups prior to order.

D. Bent strap tests are to be performed in accordance with the PPI bent strap test by cutting a 1" wide section of the joint for at least 6" either side of the joint, ASTM D 2657. The joint will be bent until the ends meet per Performance Pipe Joint Procedures of PPI. If a strap test fails, the problem in the processes shall be identified and the operator will be retrained and required to make an additional set of test joints. This process will be continued until a set of test joints passes the test.

3.2 INSTALLATION

A. Water pipe shall be installed in accordance with the manufacturer's printed specifications and instructions, and in conformance with AWWA C151.

B. The water pipe shall be handled carefully to prevent damage to the pipe, pipe lining, or coating. Water pipe and fittings shall be loaded and unloaded using hoists and slings to avoid shock or damage, and under no circumstances shall they be dropped, skidded, or rolled. If any part of the coating or lining is damaged, repair thereof shall be made in a manner satisfactory to the ENGINEER at the CONTRACTOR's expense. All water pipe and fittings shall be inspected for defects. Damaged pipe will be rejected and the CONTRACTOR shall immediately place all damaged pipe apart from the undamaged and shall remove the damaged pipe from the site within 24 hours.

C. Whenever it becomes necessary to cut a length of water pipe, the cut shall be made by abrasive saw or by special pipe cutter.

D. All pipe ends shall be square with the longitudinal axis of the water pipe and shall be reamed and smoothed to assure a good connection.

E. The water pipe shall be laid to the horizontal and vertical alignment shown on the plans. A minimum five (5) foot cover shall be maintained from finish grade to top of water pipe. Fittings shall be installed at the location shown on the plans, or as required.

F. Water encountered during trenching operations shall be removed and/or controlled to prevent entry of water and other deleterious material into the pipe and fittings.

G. To prevent dirt and other foreign material from entering the pipe and fittings during handling and installation, the open end of the pipe shall be protected by a water-tight plug at all times, except when jointing the next section of pipe.

H. Under no circumstances shall pipe deflections, either horizontal or vertical, exceed the manufacturer's printed recommendations. Where deflections would exceed the manufacturer's recommendations, fittings shall be used.

I. Vertical deflections to avoid obstructions that exceed allowable water pipe joint deflections shall be accomplished by the use of fittings, and either joint restraints or vertical thrust blocking conforming to the plans. Additional fittings to those indicated on the plans will be required to accomplish these vertical deflections.

J. Concrete thrust blocks shall be furnished and installed in accordance with the plans.

K. Pressurized water pipe ends shall be plugged and thrust blocks installed, in addition to the required harness assembly. Volume and bearing area of thrust blocks for end plugs shall be equal to applicable standards for bends greater than 45°. Refer to the plans.

L. All joints within 50-feet of tees, or bends greater than, or equal to 45°, shall be restrained.

M. Continuous water service shall be provided for all structures, except for interruptions necessary for connection of temporary or new piping to the existing service or mainline piping.

N. Interruption of water services, disconnected or interrupted as a part of this Project, shall be limited to four (4) hours. Notification of the residents and building managers affected by any water service interruptions shall be made a minimum of 24 hours in advance of the interruption of service.

O. The CONTRACTOR shall maintain continuous water service at a volume and pressure to match existing, to all structures, with either existing, temporary or new piping, except as provided in this Section.

P. Installation of HDPE pipe shall comply with manufacturer printed specifications. The CONTRACTOR shall ensure appropriate and proper fit up prior to installation.

Q. Where the water main crosses below sewer and storm pipes, all joints shall be shrink wrapped.

3.3 FLUSHING, TESTING AND DISINFECTION

A. Prior to acceptance, the CONTRACTOR shall "Open-Bore" flush the water pipe, then perform hydrostatic tests, electrical continuity tests, and disinfection. Testing may be done in any sequence. However, in the event the disinfection and continuity tests have been performed and repairs are made to the water pipe system in order to pass the hydrostatic test, all previous tests and the "Open-Bore" flushing shall be repeated to the satisfaction of the ENGINEER.

3.4 OPEN-BORE FLUSHING

A. Open bore flushing is required of all installed water pipes to remove any foreign matter. The CONTRACTOR shall furnish, install and remove all pumps, fittings and pipes necessary to perform the flushing; shall provide all additional excavation and backfill; and shall dispose of all water and debris flushed from the water pipe. Flushing through fire hydrants, reduced outlets or fittings shall not be permitted unless specifically authorized in writing by the ENGINEER. The CONTRACTOR shall notify the ENGINEER, in writing, 48 hours in advance of any flushing operation. All flushing will be done between the hours of 1:00 a.m. and 5:00 a.m. unless otherwise authorized by the ENGINEER. A flushing scheme shall be submitted by the CONTRACTOR for review and approval by the ENGINEER prior to flushing.

3.5 HYDROSTATIC TESTING

A. Hydrostatic testing will be conducted in the presence of the ENGINEER on newly installed water pipes after "Open-Bore" flushing, in accordance with the requirements of AWWA C600 and as stated hereafter. The CONTRACTOR shall furnish all assistance,

equipment, labor, materials, and supplies necessary to complete the test to the satisfaction of the ENGINEER. The CONTRACTOR shall suitably valve-off or plug the outlet to existing or previously-tested water pipe prior to performing the required hydrostatic test. Prior to testing, all air shall be expelled from the water pipe. If permanent air vents are not available to accommodate testing, the CONTRACTOR shall install corporation stops and blow-off lines so the air can be expelled as the line is filled with water.

B. The hydrostatic pressure shall be a minimum of 150 p.s.i. or 1-1/2 times the operating pressure of the water pipe, whichever is greater, unless otherwise directed by the ENGINEER. Acceptance pressure testing shall be done with all service lines installed, corporation stops open, and pressure against the closed curb stops. The duration of each DIP hydrostatic pressure test shall be one hour. Pumping will cease after the required test pressure has been reached. If the pressure remains constant for one hour without additional pumping, that section of water pipe is acceptable. HDPE pipe testing shall be performed in compliance with printed manufacturer's Specifications.

C. If the pressure drops 5 p.s.i. or more during the initial one-hour hydrostatic pressure test of the DIP, the CONTRACTOR shall conduct a leakage test. Leakage shall be determined by measuring "make-up" water necessary to restore the specified test pressure. The quantity of water lost from the water pipe shall not exceed the number of gallons per hour as determined by the following formula:

$$\frac{ND(P)^{0.5}}{L} = 7400$$

L= Allowable leakage in gallons per hour
N= Summation of mechanical and push-on joints in length of water pipe tested
D= Diameter of water pipe in inches
P= Test pressure in pounds per square inch

D. Should the tested section fail to meet the pressure test as specified, the CONTRACTOR shall locate and repair the defects and then retest the water pipe as specified above. Any specific leakage point detected shall be corrected by the CONTRACTOR to the satisfaction of the ENGINEER regardless of the allowable leakage specified above.

E. All tests shall be made with the auxiliary gate valves open and pressure against the hydrant. After the hydrostatic test has been successfully completed, each valve shall be tested by closing in turn and relieving the pressure beyond. This test of the valves will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked. The CONTRACTOR shall verify that the pressure differential across the valve does not exceed the rated working pressure of the valve.

F. Sections to be tested shall be limited to 1,500 feet, unless otherwise approved, in writing, by the ENGINEER.

G. Defective materials or workmanship, discovered as a result of hydrostatic tests, shall be replaced by the CONTRACTOR. Whenever it is necessary to replace defective material or correct the workmanship, the hydrostatic test shall be repeated until a satisfactory test is obtained.

H. The ENGINEER shall be present for all hydrostatic and leakage tests. The CONTRACTOR shall notify the ENGINEER at least 48 hours prior to any test and shall

notify the ENGINEER at least 2 hours in advance of the scheduled time if the test is to be canceled or postponed.

I. After completion of testing, all test and air vent pipe shall be removed and the corporation stop closed at the water pipe, in the presence of the ENGINEER.

J. HDPE hydrostatic testing shall be per ASTM F2164-02. Test pressure shall be 150 p.s.i..

3.6 DISINFECTION

A. Disinfection by chlorination of all new water pipe shall be completed and a satisfactory bacteriological report obtained prior to placing the pipe in service. "Open-bore" flushing shall be completed before chlorination is begun.

B. Chlorine shall be applied by one of the following methods:

1. liquid chlorine gas-water mixture;
2. direct chlorine gas feed; or
3. hypochlorite commercial products such as HTH, Perchloren, Macho-chlor, or approved equal.

The chlorinating agent shall be applied at the beginning of the section adjacent to the feeder connection, insuring treatment of the entire water pipe. Water shall be fed slowly into the new water pipe with chlorine applied in amounts to produce a dosage of 50 ppm. Application of the chlorine solution shall continue until the required residual of not less than 50 ppm free chlorine is evident at all extremities of the newly constructed line.

C. The chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device. Chlorine gas shall be fed directly from a chlorine cylinder equipped with a suitable device for regulating the rate of flow and the effective diffusion of gas within the water pipe. Hypochlorite products shall be placed or injected into the water pipe. During the chlorination process, all intermediate valves and accessories shall be operated. Valves shall be manipulated so that the strong chlorine solution in the water pipe being treated will not flow back into the pipe supplying the water.

D. The following table is to be used as a guide for chlorinating pipes by the calcium hypochlorite and water mixture method. The given dosage per 100 feet results in a chlorine solution of 40 to 50 ppm. This dosage takes into account that contractors most frequently use granular HTH, which is 65% pure. If another chlorinating agent is used, the dosage must be adjusted.

PIPE DIAMETER (in.)	DOSAGE (oz.) PER 100 FEET
4+	0.60
6+	1.35
8+	2.75
10	4.30
12	6.19
16	11.00
20	17.00

E. A residual of not less than 50 ppm free chlorine shall be produced in all parts of the water pipe. After 24 hours detention there shall be a minimum free chlorine residual of 25 ppm in all parts of the water pipe. This residual shall then be neutralized in the pipe by injecting an approved reducing agent such as sulfur dioxide, sodium bisulfate, sodium

sulfite or sodium thiosulfate.

F. After the water pipe system has been thoroughly flushed, samples will be taken at representative locations in the system by the ENGINEER, placed in sterile bottles, and submitted to an approved laboratory for bacteriological examination. The presence of bacteria in any sample shall be verified with a second sample at the same location. If verified, the pipe disinfection procedure shall be repeated and additional samples taken for bacteriological examination. Pipe disinfection, sampling, and testing procedures shall be repeated, at the CONTRACTOR's expense, until satisfactory results are obtained.

G. The water shall be flushed from the water pipe at its extremities, including all curb stops, until the replacement water chlorine residuals are equal to those of the permanent source of supply. The dechlorinated water and water used for flushing shall be disposed of in a manner approved by the ENGINEER, and in conformance with current requirements of the Alaska Department of Fish and Game, and the Alaska Department of Environmental Conservation.

END OF SECTION

SECTION 02702 - CONSTRUCTION SURVEYING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to perform all surveying and staking necessary for the completion of the project in conformance with the plans and specifications, including all calculations required to accomplish the work.

B. The WORK shall include the staking, referencing and all other actions as may be required to preserve or restore land monuments and property corners which are situated within the project area, and to establish monuments as shown on the plans.

C. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to perform all surveying and staking necessary for the completion of Excavation and Embankment in accordance with SECTION 02202.

1.2 SUBMITTALS

A. All information necessary for as-built plan production from actual measurements and observations made by the CONTRACTOR’s own work force, including subcontractors.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 CONSTRUCTION

A. All surveying involving property lines or monuments shall be done by, or under the direction of, a Registered Land Surveyor licensed to practice in the State of Alaska.

B. The OWNER will supply information relative to the approximate locations of monuments and corners, but final responsibility for locations, referencing, and restoration shall rest with the CONTRACTOR.

C. In the event the CONTRACTOR does not replace the survey monuments and property corners disturbed by the CONTRACTOR's operations, the OWNER may, after first notifying the CONTRACTOR, replace the monuments in question and the cost of such replacements shall be deducted from payments to the CONTRACTOR.

D. The CONTRACTOR shall provide the OWNER with a copy of all surveyors’ notes, if requested by the ENGINEER, prior to each Pay Request, which payment for Item 2702.1, Construction Surveying, is increased from the previous Pay Request.

E. The CONTRACTOR shall provide the OWNER with a copy of all surveyors’ notes, prior to the request for final payment, and include the information on the record drawings.

F. The CONTRACTOR shall obtain all information necessary for as-built plan production from actual measurements and observations made by the CONTRACTOR’s own work force, including subcontractors, and submit this information to the ENGINEER.

G. The CONTRACTOR shall use competent, qualified personnel and suitable equipment for the layout work required and shall furnish all stakes, templates, straightedges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.

H. The CONTRACTOR shall perform all staking necessary to delineate clearing and/or grubbing limits; all cross sections necessary for determination of excavation, embankment, including preliminary, intermediate and/or re-measure cross sections as may be required; all slope staking; all staking and routine monitoring of settlement monitoring devices; all staking of culverts and drainage structures, including the necessary checking to establish the proper location and grade to best fit the conditions on site; the setting of such finishing stakes as may be required; the staking of right-of-way; the staking, referencing and other actions as may be required to preserve or restore land monuments and property corners; and all other staking necessary to complete the project.

I. The CONTRACTOR's field books shall be available for inspection by the ENGINEER at any time.

J. The ENGINEER may randomly spot-check the CONTRACTOR's surveys, staking, and computations at the ENGINEER's discretion. After the survey, or staking, has been completed, the CONTRACTOR shall provide the ENGINEER with a minimum of 72 hours notice prior to performing any work, and shall furnish the appropriate data as required to allow for such random spot-checking. The OWNER assumes no responsibility for the accuracy of the work.

K. The ENGINEER may make minor adjustments in grades and locations of improvements based on the staking information provided by the CONTRACTOR. The CONTRACTOR shall adjust the grade stakes as required to accommodate minor changes at no additional cost to the OWNER.

END OF SECTION

SECTION 02801 - SEEDING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for preparing the ground and furnishing and applying seed, fertilizer, lime and mulch as called for in the contract, all in reasonably close conformity with these specifications and at locations shown on the Drawings or established by the ENGINEER.

B. It is the intent of theses specification that a living vegetative cover will be provided in the cut and fill slopes described in part 3.

C. Seed mix for this Project shall be Type III.

PART 2 - PRODUCTS

2.1 SEED

A. Seed shall be furnished separately or in mixture in standard sealed containers clearly labeled with: Seed name; lot number; net weight; percentages of purity and of germination and hard seed; and, percentage of maximum weed seed content. The CONTRACTOR shall furnish the ENGINEER duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six months of date of delivery. This statement shall include: Name and address of laboratory; date of test; lot number for each kind of seed; and results of tests as to name, percentages of purity and germination, and percentage of weed content, for each kind of seed furnished, and, in the case of a mixture, the proportions of each kind of seed.

B. Seed mixes shall conform to one of the following:

MIX PROPORTION				
TYPE	VARIETY	TYPE I	TYPE II	TYPE III*
Red Fescue	Pennlawn Boreal Dawson	1/3	1/3	1/3
Tall Fescue		1/3		
Perennial Rye	Manhattan Derby Regal	1/3	1/3	1/3
Blue Grass	Nugget Newport Park		1/3	1/3

*Maximum weed seed content shall be 1%.

**Proportion to provide rapid grass cover for protection of lawn areas during inclement fall weather.

C. Application rates of both Type I and Type II shall be 3.5 pounds per 1,000 square feet. Application rate for Type III shall be 5.0 pounds per 1,000 square feet.

2.2 FERTILIZER

A. Fertilizer shall be a standard commercial grade fertilizer, supplied separately or in mixtures, and shall conform to all State and Federal regulations. Fertilizer shall be 10-20-20 applied at the rate of 12 pounds per 1000 square feet. The fertilizer shall contain slow release nitrogen in the form of inorganic chemicals amounting to at least 75% of the available nitrogen specified.

B. Fertilizer shall be furnished in new, clean, sealed, moisture-proof, and properly labeled containers, clearly labeled with the name, weight, and guaranteed analysis of the contents.

C. Fertilizer for use in a hydraulic sprayer shall be soluble or ground to a fineness that will permit complete suspension of all insoluble particles in the water or slurry.

2.3 LIME

A. Lime shall be agricultural ground limestone containing not less than 85% dolomite, with 95% passing through a 100-mesh screen, delivered to the site in original unopened containers labeled to show analysis.

B. Limestone for use in a hydraulic sprayer shall be soluble or ground to a fineness that will permit complete suspension of all insoluble particles in the water or slurry.

2.4 MULCH

A. Mulch shall be natural or cooked wood cellulose fiber which shall have the property of dispersing readily in water and shall have no toxic effect when combined with seed or other materials. The homogeneous slurry or mixture shall be capable of application with power spray equipment. A colored dye which is noninjurious to plant growth may be used when specified. Wood cellulose fiber shall be packaged in new, labeled containers, shall have an equilibrium air-dried moisture content of 12% plus or minus 3% at the time of manufacture, and shall have a pH range of 3.5 to 5.0.

PART 3 - EXECUTION

3.1 SOIL PREPARATION

A. After grading, and topsoiling if required, has been completed in conformity with the lines and grades shown on the Plans or staked by the ENGINEER, and before beginning seeding operations, the areas to be seeded shall be cultivated to provide a reasonably firm, but friable seedbed. Cultivation shall be carried to a depth of two inches, except on slopes steeper than 3:1, depth of cultivation may be reduced as directed by the ENGINEER. All cultivated areas shall be raked or cleared of stones two inches in diameter and larger and all weeds, plant growth, sticks, stumps, and other debris or irregularities which might interfere with the seeding operation, growth of grass, or subsequent maintenance of the grass covered areas, shall be removed.

3.2 SEEDING SEASONS

A. All seeding shall be completed prior to August 15th, or the contract deadline, whichever is sooner. Seeding other than the specified dates will be allowed only with prior written permission of the ENGINEER.

B. No seeding shall be done during windy conditions or when climactic conditions or ground conditions would hinder placement or proper growth.

3.3 APPLICATION METHODS

A. Seed, fertilizer, ground limestone and mulch material shall be placed by one of the following methods.

B. Hydraulic Method

1. Seeding by hydraulic methods shall consist of furnishing a slurry made of seed, fertilizer, ground limestone, wood cellulose fiber mulch, and water, and applying the slurry under pressure to the designated area.
2. A slurry unit shall consist of a mixture of the following proportionate quantities of water, mulch fiber, seed, fertilizer and ground limestone:

Water	1,000 gallons
Mulch Fiber	200 pounds
Seed	35 pounds
Fertilizer	120 pounds
Ground Limestone	500 pounds

3. An adequate scale shall be provided by the CONTRACTOR to weigh the mix proportions.
4. The mixing and application shall be as follows:

a. Fill the tank with water to 1/3 full and agitate at half speed.
b. Add fertilizer, ground limestone if required, and 1/2 the required mulch fiber.
c. Fill the tank to 2/3 full and agitate at full speed.
d. Add the remaining mulch fiber.
e. Agitate at full speed and add water until the tank is full, then add the seed.
f. Begin slurry distribution after five minutes of agitation.

5. After fertilizer and seed are placed in the hydraulic seeder, the mixture shall be completely applied within one hour. Seed remaining in contact with fertilizer for more than one hour shall be rejected and additional seed at the specified rate shall be added at no additional cost.
6. The slurry mixture shall be spread uniformly (approximately one slurry unit per 10,000 square feet) upon the areas designated.
7. Hydraulic seeding equipment shall be capable of maintaining a continuous agitation so that a homogeneous mixture can be applied through a spray nozzle. The pump shall be capable of producing sufficient pressure to maintain a continuous, non-fluctuating spray capable of reaching the extremities of the seeding area with the pump unit located on the roadbed. Sufficient hose shall be provided to reach areas not practical to seed from the nozzle unit situated on the roadbed.

C. Dry Method

1. Mechanical spreaders, seed drills, landscape seeders, cultipacker seeders, fertilizer spreaders, or other mechanical spreading equipment approved by the ENGINEER may be used when seed and fertilizer are to be applied in dry form.

2. Fertilizer, and ground limestone if required, shall be spread separately at the specified rates and then incorporated in one operation to a minimum depth of two inches. Weather and soil conditions permitting, seeded areas shall be compacted, within twenty-four hours from the time the seeding is completed, by cultipacker, roller, or other equipment approved by the ENGINEER.
3. Compacting equipment shall be operated at right angles to the slope. Compaction shall not be performed when the soil is in such condition that it will be picked up by the compacting equipment, nor shall heavy soils be compacted at all if so directed by the ENGINEER.
4. Hand operated seeding devices may be substituted provided that the rate of application for both seed and nutrient is twice that of dry mechanical methods, and that the end result required is attained. Hand-operated seeding devices may be used only upon prior written approval of the ENGINEER.

3.4 MAINTENANCE OF SEEDED AREAS

A. The CONTRACTOR shall protect seeded areas against traffic by warning signs or barricades, as approved by the ENGINEER. Surfaces gullied or otherwise damaged following seeding shall be repaired by re-grading, re-seeding, and re-mulching, as directed by the ENGINEER, and the CONTRACTOR shall otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

B. The seeded areas shall be watered by the CONTRACTOR as required for proper germination and growth. Equipment used in watering shall be capable of reaching all seeded areas from the traveled way.

3.5 INSPECTION AND ACCEPTANCE

A. Acceptance of seeded areas shall be based on a uniform stand of vegetation at the time of final inspection. Areas failing to show a uniform stand after germination shall be scarified and reseeded as herein specified.

3.6 SEEDING AREAS

The following areas shall be seeded:

A. Cut slopes H:1, where H is greater than 1. These are cut slopes in non rock material.
B. Fill slopes outside of the roadway recovery area.
C. Additional areas disturbed by construction activities, including but not limited to clearing, storage or access.

The following areas shall be excluded from seeding:

A. Roadway travel way and recovery area.
B. Cut slopes H:1, where H is less than 1. These are cut slopes in rock material.
C. Stockpile area designated on plans.

END OF SECTION

SECTION 02910 – SIGNAGE AND STRIPING

PART 1 – GENERAL

1.1 DESCRIPTION.

The work in this section shall include all labor, materials, tools and equipment necessary to furnish and install all signs shown on the Drawings and as described in these Specifications. The WORK shall also include all labor materials, tools and equipment necessary to furnish and install all pavement markings as described in the Contract Documents and shown on the Plans.

PART 2 – PRODUCTS

2.1 PAINT- Use one of the following

A. AASHTO M 248 Type F (Alkyd Resin), or

B. FSS TT-P-19-D(1) Paint, Latex (Acrylic Emulsion, Exterior), or

C. The current state of Alaska DOT & PF maintenance specification for pavement marking paint.

2.2 SIGNS

A. Comply with City and borough of Wrangell Standards.

B. Comply with standards set forth for sheeting and posts in ADOT & PF Section 730.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Site Verification of Conditions:

1. Verify weather forecast during planned time of placement is within weather limitations.

2. Verify surfaces are complete and surface is ready to receive paint.

3. Verify location of existing utilities and location of signs.

3.2 CONSTRUCTION

A. Paint traffic markings per ADOT & PF sections 670.

B. Install all signs according to the dimensions and locations required on Plans.

END OF SECTION

DIVISION 3

CONCRETE

SECTION 03301 - MINOR CONCRETE STRUCTURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing minor concrete structures and associated backfill and grading, in accordance with these specifications and in reasonably close conformity with the lines, grades, details, and locations shown on the plans or established by the ENGINEER.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portland Cement shall conform to the requirements of AASHTO M 85.

B. Aggregate shall be clean, durable, uniformly graded sand and gravel, or crushed stone, 100 percent passing a 1 1/2 inch sieve and containing not more than 5 percent passing a U.S. No. 200 sieve.

C. Air-entraining admixtures shall conform to the requirement of AASHTO M 154.

D. Curing materials shall conform to the requirements of AASHTO M 182, AASHTO M 171, or AASHTO M 148, as appropriate; except that AASHTO M 148 is modified to prohibit use of compounds utilizing linseed oil.

E. Reinforcing Steel shall conform to the requirements of AASHTO M 31.

F. Welded Wire Fabric shall conform to the requirements of AASHTO M 55.

G. Joint Fillers shall be of the type specified in the contract, and shall conform to the appropriate following requirements:

1. Poured filler - AASHTO M 173 or AASHTO M 282 as specified.
2. Preformed filler - AASHTO M 213
3. Hot-poured sealant - ASTM D 3405
4. Hot-poured elastomeric type sealant - ASTM D 3406

H. “Concrete International Corporation” Ashford formula or approved equal, shall be used instead of the specified curing materials.

2.2 COMPOSITION OF CONCRETE

A. Portland cement concrete will ordinarily be accepted on the basis of certification.

B. The concrete shall contain 4 to 7 percent of entrained air, as determined by AASHTO T 152. Concrete shall have a slump of not more than 4 inches as determined by AASHTO T 119.

C. Concrete shall contain not less than 611 pounds of cement and not more than 300 pounds of water per cubic yard.

D. The concrete shall develop a minimum compressive strength of 3,000 psi in 28 days.

E. The concrete shall be subject to acceptance or rejection by visual inspection at the job site. Retempering concrete will not be permitted.

F. When a commercial supplier is used the CONTRACTOR shall furnish a certification with each truck load of concrete certifying that the material and mix proportions used are in conformance with the approved mixture.

H. Initial field tests of all materials will be made by the ENGINEER when deemed necessary, in accordance with the applicable Specifications. When the results of the field tests indicate the material does not conform to the requirements of the Specifications, the re-tests required by the ENGINEER shall be at the expense of the CONTRACTOR.

2.3 FORMS

A. Forms shall be designed and constructed to be removed without injuring the concrete. They shall be free of bulge and warp, and constructed so the finished concrete will be of the form and dimensions shown on the plans, and true to line and grade. Forms for concrete containing a retarding admixture shall be designed for a lateral pressure equal to that exerted by a fluid weighing 150 pounds per cubic foot.

PART 3 - EXECUTION

3.1 PLACING CONCRETE

A. All concrete shall be placed before it has taken its initial set and, in any case, within 30 minutes after mixing. Concrete shall be placed in such a manner as to avoid segregation of coarse or fine portions of the mixture, and shall be spread in horizontal layers when practicable. Special care shall be exercised in the bottom of slabs and girders to assure the working of the concrete around nests of reinforcing steel, so as to eliminate rock pockets or air bubbles. Enough rods, spades, tampers and vibrators shall be provided to compact each batch before the succeeding one is dumped and to prevent the formation of joints between batches.

B. Extra vibrating shall be done along all faces to obtain smooth surfaces. Care shall be taken to prevent mortar from splattering on forms and reinforcing steel and from drying ahead of the final covering with concrete.

C. When concrete is placed by the pumping method or by tremie operations, the use of aluminum pipe or conduit for transporting the concrete will not be permitted.

D. The intervals between deliveries of batches for a single pour shall not exceed 30 minutes.

E. When placing concrete at or below an atmospheric temperature of 40°F the CONTRACTOR shall not place concrete on frozen ground. Thaw ground with heaters. Concrete mix temperatures shall be as shown below.

F. The concrete may require protection for 4-7 days after pouring. If temperatures remain below freezing, insulating blanket coverage is required. If temperatures are slightly below freezing (30° min) at night and above freezing during the day, Kraft paper with complete coverage may be used in lieu of insulated blankets.

G. No additives containing chlorides shall be used. Use “Pozzutec 20” by Master Builders or “Polarset” W.R. Grace or pre-approved equal.

Condition of Placement and Curing		Walls & Slabs	Footing
Min. temp. fresh concrete as mixed for weather indicated, degrees F.	Above 30°F. 0 to 30°F. Below 0°F.	60 65 70	55 60 65
Min. temp. fresh concrete as placed and maintained, degrees F.		55	50
Max. allowable gradual drop in temp. throughout first 24 hours after end of protection, degrees F.		50	40

3.2 FINISHING CONCRETE SURFACES

A. All concrete exposed surfaces shall be broom finished.

3.3 CURING CONCRETE

A. All concrete will be cured a minimum of 7 days, or, if high early strength cement is used, a minimum of 3 days. The concrete shall be cured in accordance with ACI.

END OF SECTION

DIVISION 16

ELECTRICAL

SECTION 16050 – BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Sleeve seals.
4. Common electrical installation requirements.

1.3 DEFINITIONS

A. ATS: Acceptance Testing Specifications.

B. EPDM: Ethylene-propylene-dieneterpolymer rubber.

C. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

1.5 QUALITY ASSURANCE

A. Test Equipment Suitability and Calibration: Comply with NETA ATS, “Suitability of Test Equipment” and “Test Instrument Calibration.”

1.6 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.

4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate electrical testing of electrical, mechanical, and architectural items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated “wall pipe,” equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.138-inch thickness as indicated and of length to suit application.

2.3 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: **EPDM NBR** interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
3. Pressure Plates: **Carbon steel** Include two for each sealing element.
4. Connecting Bolts and Nuts: **Carbon steel with corrosion-resistant coating** of length required to secure pressure plates to sealing elements. Include one for each sealing element.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side greater than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches (1270 mm) and 1 or more sides equal to, or greater than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches (50-mm) above finished floor level.

G. Size pipe sleeves to provide 1/4-inch (6.4 mm) annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.

3.3 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4 FIELD QUALITY CONTROL

A. Inspect installed sleeve and sleeve-seal installations and associated firestopping for damage and faulty work.

END OF SECTION

SECTION 16060 – GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes methods and materials for grounding systems and equipment.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Field quality-control test reports.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.2 CONNECTORS

A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel, 3/4 inch in diameter by 10 feet in length.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare ortinned-copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches below grade.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Receptacle circuits.
3. Single-phase motor and appliance branch circuits.
4. Three-phase motor and appliance branch circuits.
5. Armored and metal-clad cable runs.

B. Heat-Tracing Cables: Install a separate insulated equipment grounding conductor to each heat-tracing cable.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

3.4 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells.

a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
b. Perform tests by fall-of-potential method according to IEEE 81.

B. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System: 10 ohms.
2. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).

C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Engineer promptly and include recommendations to reduce ground resistance.

END OF SECTION

SECTION 16075 – ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Identification for conductors and communication and control cable.
2. Warning labels and signs.
3. Equipment identification labels.

1.2 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

1.4 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

PART 2 - PRODUCTS

2.1 CONDUCTOR AND COMMUNICATION AND CONTROL-CABLE IDENTIFICATION MATERIALS

A. Marker Tape: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment, unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES".

2.3 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and ultraviolet-resistant seal for label.

B. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a black background. Minimum letter height shall be 3/8 inch.

PART 3 - EXECUTION

3.1 APPLICATION

A. Auxiliary Electrical Systems Conductor and Cable Identification: Use marker tape to identify field-installed alarm, control, signal, sound, intercommunications, voice, and data wiring connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and cable pull points. Identify by system and circuit designation.
2. Use system of designations that is uniform and consistent with system used by manufacturer for factory-installed connections.

B. Warning Labels for Cabinets, Boxes, and Enclosures for Power and Lighting: Comply with 29 CFR 1910.145 and apply self-adhesive warning labels. Identify system voltage with black letters on an orange background. Apply to exterior of door, cover, or other access.

1. Equipment with Multiple Power or Control Sources: Apply to door or cover of equipment including, but not limited to, the following:
   a. Controls with external control power connections.

C. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions: Unless otherwise indicated, provide a single line of text with ½ inch high letters on 1 ½ inch high label; where 2 lines of text are required, use labels 2 inches high.

   a. Outdoor Equipment: Engraved, laminated acrylic or melamine label, drilled for screw attachment, or self-adhesive.

b. Elevated Components: Increase sizes of labels and legend to those appropriate for viewing from the floor.

2. Equipment to Be Labeled:

a. Panelboards, electrical cabinets, and enclosures.
b. Transformers.
c. Disconnect switches.
d. Enclosed circuit breakers.
e. Motor starters.
f. Push-button stations.
g. Contactors.

3.2 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach non-adhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.

F. Color-Coding for Phase Identification, 600 V and Less: Use the colors listed below for ungrounded service, feeder, and branch-circuit conductors.

1. Color shall be factory applied or ends may be taped.
2. Colors for 208/120-V Circuits:

a. Phase A: Black.
b. Phase B: Red.
c. Phase C: Blue.

3. Colors for 480/277-V Circuits:

a. Phase A: Brown.
b. Phase B: Orange.
c. Phase C: Yellow.

END OF SECTION

SECTION 16120 – CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70.

B. Conductor Insulation: Comply with NEMA WC 70 for Types THW, THHN-THWN, XHHW, UF, USE and SO.

C. Multiconductor Cable: Comply with NEMA WC 70 for armored cable, Type AC metal-clad cable, Type MC mineral-insulated, metal-sheathed cable, Type MI nonmetallic-sheathed cable, Type NM, Type SO and Type USE with ground wire.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

C. Control Circuits: Stranded copper.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type THHN-THWN, single conductors in raceway Type XHHW, single conductors in raceway Mineral-insulated, metal-sheathed cable, Type MI, Type SE or USE multiconductor cable.

B. Exposed Feeders: Type THHN-THWN, single conductors in raceway Armored cable, Type AC, Metal-clad cable, Type MC, Mineral-insulated, metal-sheathed cable, Type MI, Nonmetallic-sheathed cable, Type NM.

C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway, Underground feeder cable, Type UF.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway, Armored cable, Type AC, Metal-clad cable, Type MC, Mineral-insulated, metal-sheathed cable, Type MI, Nonmetallic-sheathed cable, Type NM.

E. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN-THWN, single conductors in raceway, Underground branch-circuit cable, Type UF.

F. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless steel, wire-mesh, strain relief device at terminations to suit application.

G. Class 1 Control Circuits: Type THHN-THWN, in raceway.

H. Class 2 Control Circuits: Type THHN-THWN, in raceway, Power-limited cable, concealed in building finishes, Power-limited tray cable, in cable tray.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer’s recommended maximum pulling tensions and sidewall pressure values.

B. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.

C. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

D. Support and sleeve cables, and seal penetrations according to Division 16 Section “Basic Electrical Materials and Methods”.

E. Identify and color-code conductors and cables according to Division 16 Section “Electrical Identification”.

F. Tighten electrical connectors and terminals according to manufacturer’s published torque-tightening values. If manufacturer’s torque values are not indicated, use those specified in UL 486A and UL 486B.

G. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

H. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections.

C. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION

SECTION 16130 - RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets indicated.

B. Shop Drawings: For custom fabricated raceways, fittings, boxes, enclosures, and cabinets, show fabrication and installation details of components.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Manufacturers: Subject to compliance with requirements.

B. Rigid Steel Conduit: ANSI C80.1.

C. Delete first paragraph below unless required for corrosion resistance, power distribution at frequencies above 60 Hz, or other special needs.

D. In first paragraph below, zinc-coated steel type is most frequently used. Delete paragraph to allow Contractor to choose appropriate material.

E. LFMC: Flexible steel conduit with PVC jacket.

F. Fittings: NEMA FB 1, compatible with conduit and tubing materials.

2.2 NONMETALLIC CONDUIT AND TUBING

A. Retain “Available” in paragraph below for nonproprietary and delete “Available” for semi-proprietary specifications.

B. Manufacturers: Subject to compliance with requirements.

C. Delete any product from four paragraphs below if not required. See Evaluations for types of nonmetallic conduit.

D. ENT: NEMA TC 13.

E. RNC: NEMA TC 2, Schedule 40 and Schedule 80 PVC.

F. ENT and RNC Fittings: NEMA TC 3; match to conduit or tubing type and material.

G. LFNC: UL 1660.

2.3 SURFACE RACEWAYS

A. Manufacturers: Subject to compliance with requirements.

B. Insert requirements for finish-coat paint color, if applicable, in paragraph below.

C. Surface Metal Raceways: Galvanized steel with snap-on covers. Finish with manufacturer’s standard prime coating.

D. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC compound with matte texture.

E. Types, sizes, and channels as indicated and required for each application, with fittings that match and mate with raceways.

2.4 BOXES, ENCLOSURES, AND CABINETS

A. Retain “Available” in first paragraph below for nonproprietary and delete “Available” for semi-proprietary specifications.

B. Manufacturers: Subject to compliance with requirements.

C. Revise paragraph below. Aluminum is also available and suitable for use with steel raceways.

D. Cast-Metal Outlet and Device Boxes: NEMA FB 1, Type FD, with gasketed cover.

E. Revise paragraph below to specify type of plastic material if required.

F. Nonmetallic Outlet and Device Boxes: NEMA OS 2.

G. See Editing Instruction No. 2 in the Evaluations for discussion of floor boxes.

H. Select paragraph above or first paragraph below.

I. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

J. Revise first paragraph below to allow galvanized cast iron if required.

K. Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

L. Hinged-Cover Enclosures: NEMA 250, with continuous hinge cover and flush latch.

M. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

N. Nonmetallic Enclosures: Plastic, finished inside with radio-frequency-resistant paint.

O. Cabinets: NEMA 250, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

2.5 FACTORY FINISHES

A. Finish: For raceway, enclosure, or cabinet components, provide manufacturer's standard paint applied to factory-assembled surface raceways, enclosures, and cabinets before shipping.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors:

1. Exposed: Rigid steel or IMC.
2. Concealed: Rigid steel or IMC.
3. Underground, Single Run: RNC.
4. Underground, Grouped: RNC.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Boxes and Enclosures: NEMA 250, Type 3R or 4, unless otherwise indicated.

B. Select from options in first paragraph below.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

3.2 INSTALLATION

A. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

B. Complete raceway installation before starting conductor installation.

C. Support raceways as specified in Division 16 Section 16050 “Basic Electrical Materials and Methods.”

D. Install temporary closures to prevent foreign matter from entering raceways.

E. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above finished slab.

F. Make bends and offsets so ID is not reduced. Keep legs of bends in same plane and keep straight legs of offsets parallel, unless otherwise indicated.

G. Raceways Embedded in Slabs: Install in middle 1/3 of slab thickness where practical and leave at least 2 inches of concrete cover.

1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.
2. Space raceways laterally to prevent voids in concrete.
3. Run conduit larger than 1-inch trade size parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
4. Change from nonmetallic tubing to Schedule 80 nonmetallic conduit, rigid steel conduit, or IMC before rising above floor.

H. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.

1. Run parallel or banked raceways together on common supports.
2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

I. Join raceways with fittings designed and approved for that purpose and make joints tight.

1. Use insulating bushings to protect conductors.

J. Tighten set screws of threadless fittings with suitable tools.

K. Terminations:

1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

M. Telephone and Signal System Raceways, 2-Inch Trade Size and Smaller: In addition to above requirements, install raceways in maximum lengths of 150 feet and with a maximum of two 90-degree bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.

N. Delete first paragraph and subparagraphs below if not applicable.

O. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

P. Stub-up Connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6 inches above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.

Q. Flexible Connections: Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.

R. Surface Raceways: Install a separate, green, ground conductor in raceways from junction box supplying raceways to receptacle or fixture ground terminals.

S. Select paragraph above for metal floor boxes and first paragraph below for nonmetallic floor boxes.

T. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

3.3 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

SECTION 16442 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.

1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:

    a. Enclosure types and details for types other than NEMA 250, Type 1.
    b. Bus configuration, current, and voltage ratings.
    c. Short-circuit current rating of panelboards and overcurrent protective devices.
    d. UL listing for series rating of installed devices.
    e. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

2. Wiring Diagrams: Power, signal, and control wiring.
3. Field quality-control test reports.
4. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the WORK include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:

a. Eaton Corporation; Cutler-Hammer Products.
b. General Electric Co.; Electrical Distribution & Protection Div.
c. Siemens Energy & Automation, Inc.
d. Square D.

2.2 MANUFACTURED UNITS

A. Enclosures: Surface-mounted cabinets. NEMA PB 1, Type 1.

1. Rated for environmental conditions at installed location.

a. Outdoor Locations: NEMA 250, Type 3R**.**
b. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
c. Other Wet or Damp Indoor Locations: NEMA 250, Type 4 or 4X as shown on the drawings.
d. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.

2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.

B. Phase and Ground Buses: Hard-drawn copper**.**

C. Conductor Connectors: Suitable for use with conductor material.

1. Ground Lugs and Bus Configured Terminators: Compression type.

D. Service Equipment Label: UL labeled for use as service equipment for panelboards with main service disconnect switches.

E. Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

F. Panelboard Short-Circuit Rating:

1. UL label indicating series-connected rating with integral or remote upstream overcurrent protective devices. Include size and type of upstream device allowable, branch devices allowable, and UL series-connected short-circuit rating.
2. Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.3 DISTRIBUTION PANELBOARDS

A. Doors: Secured with vault-type latch with tumbler lock; keyed alike. Omit for fused-switch panelboards.

B. Main Overcurrent Protective Devices: Circuit breaker.

C. Branch Overcurrent Protective Devices:

1. For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
2. For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
3. Fused switches.

2.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

B. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.5 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker: UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with 5-mA trip sensitivity.
3. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.

    a. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
    b. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
    c. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.

B. Fused Switch: NEMA KS 1, Type HD; clips to accommodate specified fuses; lockable handle.

C. Fuses are specified in Division 16 Section “Fuses.”

2.6 ACCESSORY COMPONENTS AND FEATURES

A. Furnish accessory set including tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

B. Furnish portable test set to test functions of solid-state trip devices without removal from panelboard.

C. Fungus Proofing: Permanent fungicidal treatment for panelboard interior, including overcurrent protective devices and other components.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Comply with mounting and anchoring requirements specified in Division 16 Section “Seismic Controls for Electrical Work Electrical Supports and Seismic Restraints.”

C. Mount top of trim 74 inches (1880 mm) above finished floor, unless otherwise indicated.

D. Mount plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

E. Install overcurrent protective devices and controllers.

1. Set field-adjustable switches and circuit-breaker trip ranges.

F. Install filler plates in unused spaces.

G. Stub four 1-inch (27-GRC) empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch (27-GRC) empty conduits into raised floor space or below slab not on grade.

H. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section “Electrical Identification.”

I. Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

J. Ground equipment according to Division 16 Section “Grounding and Bonding.”

K. Connect wiring according to Division 16 Section “Conductors and Cables.”

3.2 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

B. Perform the following field tests and inspections and prepare test reports:

1. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

END OF SECTION 16442

SECTION 16900
LIFT STATION ELECTRICAL CONTROLS

1 PART 1 GENERAL

1.1 WORK INCLUDED

A. This section covers the general work necessary to furnish, install, and test the electrical hardware required to operate the Wood Road Lift Station in Wrangell, Alaska as indicated in the following. Major parts of the system are:

1. Control panel CP-1 for 2-pump lift station: As shown on the Electrical Drawings.
2. Antenna, mast, and related parts for lift station SCADA. The pump control panel has a radio which will be connected to an antenna on a mast mounted beside or behind the panel. Parts and installation details are included in the control panel drawings.
3. Depth sensor and high-level float for pump control panel: The sewer wet well has a submersible depth sensor and high-level float, that connect to the pump control panel. The parts are called out in the control panel drawings. Pumps are not part of this Section.
4. Panelboard located by the pump control panel: There is a new 120/208 V 4W panelboard with breakers next to the pump control panel. It is installed inside of CP-2, a 48”X48” NEMA 4X enclosure.
5. A 100-Amp Meter Main with 100-Amp circuit breaker to be provided and mounted in protective enclosure CP-2, (48”X48”) NEMA 4X enclosure. See drawings for details
6. A 100-Amp Transfer switch to be provided and mounted in protective enclosure CP-2, (48”X48”) NEMA 4X enclosure. See drawings for details
7. A 200-Amp generator plug shall be furnished and attached to the exterior of CP-2. See drawings for details.
8. Protective shelter and mounting system for panels: There is a fabricated rain cover for the pump control panel and Enclosure CP-2. See drawings for details.
9. Station discharge flow meter. There is a flowmeter mounted in the valve vault. It is wired to the pump control panel. See section 2.3
10. Station actuated valve: There is an electrically actuated water valve located in its own enclosure. It is wired to the pump control panel. See section 2.3.
11. Software and system integration: PLC software used in the pump control panel is by the engineer. Integration with existing Wrangell sewer collections SCADA system is by the engineer.

B. The following spare parts shall be provided.
1. One fuse of each type used in each panel. If power fuses are being provided, the number of fuses shall correspond with the number of phases that are fused.
2. One spare pilot light for each color/type used.
3. One spare control relay for each type used (excluding timers and intrinsically safe relays).

C. The lift station control panel, conduits and other electrical requirements will be installed at the locations and in the manner specified on drawings. The lift station wet well is a Classified area. Conduit and seal offs shall be provided to meet appropriate conductor separation requirements and all other NEC codes related to this installation.

D. The antenna mast, antenna, coaxial cable and lightning arrestor wire will be attached to the control panel and support structure. The lightning arrestor is installed as shown and notes on the drawings.

E. The pressure transmitter shall be installed in the wet well as described in the Installation paragraph of SECTION 16900.

1.2 WORK EXCLUDED FROM SECTION 16900

A. FCC radio license is required and will be provided by Owner.

B. Software and integration with existing WWTP computer system.

1.3 RELATED SECTIONS

A. Specification sections Division 16 – ELECTRICAL.

1.4 SUBMITTALS

A. Shop Drawings: Provide three copies for each system or control panel.
   1. Provide scale drawings detailing component layouts, interior and exterior for each control panel.
   2. Provide material lists for each control panel and associated field devices; including the following:
      a. Numerical identification of each component.
      b. Manufacturer.
      c. Part number.
      d. Description.
   3. Provide control wiring diagrams.
   4. Identify installed spares and provisions for future work (panel space, wiring and terminals).
   5. Provide product data sheets for each device.
   6. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.

B. Quality Control Submittals:
   1. Certificate of Proper Installation.
   2. Shop test and inspection results and data.
   3. Four copies of each system or package Operation and Maintenance Manual.
   4. Manufacturer's Certificate of Compliance.

1.5 CONTROL SYSTEM HARDWARE SUPPLIER

A. The Control System Hardware Supplier shall be responsible for the complete, detailed design and manufacturing of the control panels. The system shall be designed to provide all of the functionality and detail as described by these specifications and the drawings.

B. The Control System Hardware Supplier shall be a UL or ETL Listed panel shop with at least three years of experience in the design and manufacturing of this type of control system.

C. All control Panels manufactured under this contract shall be UL Listed in accordance with requirements of UL Standard 508A. Depending on the ultimate use of the panel, each panel shall be listed as either an "Enclosed Industrial Control Panel" or an

"Enclosed Industrial Control Panel Relating to Hazardous Locations with Intrinsically Safe Circuit Extensions".

1.6 CONTROL PANEL SUPPLIER'S FIELD SERVICES

A. Representative/s of the Hardware Supplier shall be present at the job for one day duration (one trip), for installation assistance, inspection, testing, start-up and job-site training. The representative/s shall be fully qualified to test, calibrate, start up and train the Owner's staff for each of the control panels fabricated under this contract.

B. Following site inspection, the Hardware Supplier shall issue a Manufacturer's Certificate of Compliance indicating satisfactory installation and operation for work performed under this section.

1.7 DELIVERY, STORAGE AND HANDLING

A. Control components shall be protected from corrosion during shipping and storage.

B. Ship and store equipment with corrosion-inhibitor systems as recommended by the equipment manufacturer.

C. Protect equipment during shipping from saltwater spray and freezing as recommended by the equipment manufacturer.

D. Store equipment in clean, dry, well-ventilated area. Protect equipment from freezing and provide heated storage areas as recommended by the equipment

E. Cover panels and other control elements to protect from dust during construction.

2 PART 2 PRODUCTS

2.1 MANUFACTURERS

A. PLCs (Programmable Logic Controllers) shall be manufactured by Siemens Co. No substitutions will be allowed.

B. Radio Modem shall Esteem Model 192M. No substitutions will be allowed.

C. Pilot lights, push buttons and selector switches shall be Allen-Bradley Series 800H. No substitutions will be allowed.

D. Control relays used in the control panels shall be IDEC RH Series, or approved equal.

E. Motor starters shall be NEMA rated starters with electronic overload relays.

F. Zener Barriers shall be MTL 7700 Series, or approved equal.

G. Intrinsically Safe Relays shall be Ingram Model ISR2, or approved equal.

H. Outdoor control panel enclosures shall be Hoffman, wall-mounted, stainless steel, UL Type 4X.

I. All operator accessible controls shall be located on the swing out panel (outdoor panels) or exterior door (inside mounted panels).

J. Antenna tower shall be a single 20-foot length of schedule 40 aluminum pipe attached securely to control panel support structure (RTU) or building support structure (MTU).

K. Field devices and components incorporated in the control panels shall be UL Listed or recognized as required for UL 508 Industrial Control Panels.

L. Control panels with extensions into hazardous locations shall be UL Listed and labeled as enclosed industrial control panels relating to hazardous locations with intrinsically safe circuit extensions.

M. The control panel shall include a 24 VDC, 4.5 Amp power supply/battery charger and sealed batteries (minimum 20AHr at 24 VDC) sufficient to operate the panel for a minimum of 4 hours when line power is lost. This component, including batteries, shall be UL approved for inclusion in a UL 508 control panel for use as a power supply and battery charger.

2.2 FUNCTIONAL SPECIFICATIONS

A. General
1. Contractor shall be responsible for coordination of equipment dimensions. Enclosure sizes are shown on drawings.

B. Lift Station Controls
1. Pump control panel:
   a. This panel will serve as a remote terminal unit (RTU) and pump control panel for the lift station.
   b. Panel will consist of the PLC, radio modem, DC UPS (battery charger and batteries), circuit breakers, fuses, relays and all other appurtenances necessary to control the station and remotely monitor the alarms and conditions as described in the Specifications and Drawings.
2. The input points to be monitored at this site shall include those inputs shown on the drawings.
3. The discrete output points to be controlled at this site shall include outputs shown on the drawings.
4. Provide backup float control of the pumps (one high-level float).
5. Provide a supported tower, Yagi antenna, lightning arrestor and all necessary cable and connectors required for a reliable communication link with the Master Controller.
6. Mount the antenna a minimum of 20 feet above finished grade. Yagi antenna shall have a minimum gain of 4 dBd.
7. The following equipment shall be mounted on the door of the control panel.
   a. Pump disconnect switches
   b. Pump LEAD/LAG Selector switch
   c. Pump 1 HOA switch
   d. Pump 2 HOA switch
   e. Pump 1 running light (green LED type)
   f. Pump 2 running light (green LED type)
   g. General alarm light (red LED type)
8. Automatic Mode level control functions:
   a. Operation of the lift station pumps is provided by the PLC to the motor starters.

b. The pressure transducer provides an analog signal to the PLC that is proportional to the depth of water in the wet well.
c. If the fluid level is above the lead pump set point and below the lag pump set point, then the lead pump is called to run.
d. If the level rises above the lag pump set point then the lag pump is called to run.
e. Pumps are shut off when the off set point is reached.
f. Setpoints shall be adjustable to a resolution of 0.1 feet.

9. Alarm functions:
   a. Any of the alarms listed in this section can be individually enabled or disabled by the operator. When enabled they can be individually selected by the operator to cause the general alarm light on the panel to turn on, the exterior light to turn on, or all of the above. A record of the alarms with the time and date shall be viewable on the operator interface.
      1) High-level Float
      2) UPS Trouble
      3) Station Power Fail
      4) Pump 1 Fail
      5) Pump 1 Overload trip
      6) Pump 1 Over Temperature
      7) Pump 1 Seal Fail
      8) Pump 2 Fail
      9) Pump 2 Overload trip
      10) Pump 2 Over Temperature
      11) Pump 2 Seal Fail
10. Emergency high-level functions:
   a. The emergency high-level function is a hard-wired circuit utilizing the high-level float and time delay relays, bypassing the PLC and energizing the motor starters directly.
   b. Two time delay relays are used in this circuit. When the high-level float is reached, Timers 1 and 2 are energized and Pump 1 starts.
   c. Timer 1 is a delay on de-energize type and begins to time when the float switch opens and shuts off the pump when timed out.
   d. Timer 2 is a delay on energize / delay on de-energize type. Pump 2 starts when the time setting is reached after the float switch closes and continues to run for the time setting after the float switch opens.
   e. The high-level float switch is suspended in the wet well at a position above the normal lag pump cut-in level. The float switch is open when hanging and closed when floating.
11. Other features:
   a. Either pump can be operated in HAND or AUTO mode by use of the HOA switch on the panel door. In AUTO mode pump operation is controlled entirely by the PLC or float based emergency backup circuit. In HAND mode the motor starter is energized independent of the PLC until the switch is returned to either the OFF or AUTO position.
   b. The wet well is a Class 1, Div 1 location. The analog signal from the pressure transducer must utilize intrinsically safe zener barriers to maintain an intrinsically safe classification. The emergency high-level float must utilize an intrinsically safe relay.
   c. The 24 VDC power supply and backup batteries power everything in the control panel except the pumps, control transformer, and motor starter coils. So, the PLC, radio, and depth sensor are powered during a utility power failure. The SCADA system will continue to report well depth, AC power failure, etc, for at least 4 hours.

2.3 COMPONENT SPECIFICATION

A. Programmable Logic Controller (PLC) – for the Lift Station control Panel.
   1. General
      a. Function: Programmable Logic Controller. Controls the operations of the lift station and remote transmitter.
      b. Type: Microprocessor based Programmable Controller with two RS-232 communication ports, chassis mounted with separate CPU, and analog Input module.
      c. Parts: CPU, discrete input and output channels and power supply contained in the Base Unit, and the expansion analog input module.
   2. Processor Unit.
      a. Manufacturer and Product: Siemens S7-200 CPU 226
   3. Chassis (Base Unit)
      a. Line Power: 24 VDC
      b. User power output: 24 VDC
      c. Input circuits: 24 each, 24 VDC, sink/source
      d. Output circuits: 16 each
      e. Manufacturer and Product: Siemens Model 6ES7 216-2AD23—0XBO
      f. No substitutions will be allowed.
   4. Analog Input Module
      a. Input circuits: 4 differential or single-ended
      b. Operating ranges: 0-20mA
      c. Manufacturer and Product: Siemens, Model 6ES7 231-OHC22-OXAO.
      d. No substitutions will be allowed.

B. Radio Modem
   1. General
      a. Function: Provide Local Area Network (LAN) communications between the RTU and the MTU.
   2. Power: 12 VDC.
   3. FCC license required and provided by City of Wrangell.
   4. Radio Manufacturer and Product
      a. Electronic Systems Technology, Inc.
         509-735-9092
         ESTeem Wireless Modems
         Model: 192M
         150-174 MHz
         2.5 Watts
      b. No substitutions will be allowed.

C. COAX cable:
   1. Low loss Times LMR400.
   2. Provide cable with lightning arrestors and connectors as required for direct connection to equipment with no splices or adaptors.

D. Antennas
   1. General:
      a. Directional antennas shall be all-welded construction with a minimum 4 dB gain for the frequency of 150-174 MHz.
      b. 100 mph wind rating.
      c. Install in accordance with manufacturers recommendations.

E. Antenna Mast

1. The antenna mast shall be a minimum of 20 feet in length (above ground).
2. The antenna mast shall be securely mounted to the support structure.
3. Manufacturer and Product
    a. The mast shall be a 20-foot (nominal) section of 2" dia. schedule 40 aluminum pipe. Actual OD is 2-3/8 inches.

F. Flowmeter
1. Flowmeter measures lift station discharge flow. Flowmeter has 4-20 mA output connected to LS control panel. The flowmeter is 120 VAC powered and is located in the valve vault. Flowmeter is mag meter type with 4 inch ANSI 150 PSI bolted flanges. The amplifier is rated for Class 1 Div 2 locations, and has a NEMA 4X environmental rating. Flowmeter spec: Badger Magnetoflow magmeter flow tube with integral M-3000 amplifier, 4 inch, 150 # bolted flanges, rubber liner, meter mounted amplifier, 120 VAC, 4-20 mA process output, Class 1 Div 2, NEMA 4X housing. Flowmeter is available from PCE Pacific (425-487-9600). No exceptions. Supply Stainless Steel grounding rings.

G. Pressure Transmitter - Submersible
1. General
    a. Function: Submersible transmitter to measure level in sewer lift station wet wells.
2. Performance Accuracy: 0.25% percent.
3. Power: 9-30 VDC.
4. Element Operating Range:
    a. Maximum depth: 30-feet.
5. Output: 4 to 20mA.
6. Transmitter
    a. Operating Temperature Range: -20 degrees C to 60 degrees C.
    b. Housing: 316SS.
    c. Internal Diaphragm: Welded 316SS.
    d. Outer Diaphragm: PTFE. 2.75" diameter.
    e. Diaphragm Protector: 316SS disc mounted with 1" standoffs.
    f. Suitable for use in a Class I, Division 1 hazardous location with an approved intrinsically safe barrier .
    g. Mounting: Wet well, per location on Drawings.
    h. Design: Specifically designed for pressure measurement in sludge or slurry applications.
7. Cable. As per manufacturer's recommendations, at lengths required for installation. Provide cable with aneroid bellows or dessicant/filter.
8. Manufacturer and Product
    a. Dwyer
    b. Pressure Systems, Inc.

2.4 SOURCE QUALITY CONTROL

A. Test process instrument and control system elements at the control panel manufacturer's facility. Demonstrate that the system meets the control requirement described in the specifications and depicted on the drawings.
1. Demonstrate function of each loop.
2. Test each input and output.
3. Verify that internal panel wiring is correct.
4. Demonstrate PLC standard functions.

5. Test timing requirements.
6. Demonstrate online and offline diagnostic tests and procedures.

B. Correct deficiencies found prior to shipment.

C. Provide three copies of equipment manuals.
1. The manuals shall include the following equipment items:
a. All field devices.
b. All major components used in the fabrication of the control panels such as: drives, motor starters, overload devices, fuses, disconnect switches, circuit breakers, human interface modules, PLCs (include I/O modules, CPUs, power supplies, communications modules, chassis, etc.), transformers, power supplies, surge arrestors, uninterruptible power supplies, pilot lights, selector switches, control relays, time delay relays, etc.
2. The manuals shall also contain the following items:
a. A material list with numbers referenced to equipment shown on the drawings and on the literature included in the manual. The material list shall serve as the Table of Contents for the equipment items.
b. Descriptive literature and user's manuals for each major component shall be provided.
c. As-built drawings for each control panel including number tags for each conductor, terminal numbers, component terminal numbers, and a brief description of what each relay contact, switch position and controller output does in the control scheme. This description can be taken from the design drawings.

D. Provide written certification at the time of shipment that all of the tests indicated in Section A above were conducted at the fabrication shop. The certification shall include the following:
1. Each test conducted shall be described.
2. The date the test was conducted shall be indicated.
3. Pass or fail shall be indicated.
4. Initials of technician conducting the test shall be provided.

3 PART 3 EXECUTION

3.1 INSTALLATION

A. Install all control and electrical equipment as per the manufacturer's recommendations and to provide operation as described in the Functional Specifications and shown on the Drawings.

B. The submersible pressure transmitter shall be installed as follows:
1. A 6" diameter Schedule 80 PVC, non-perforated pipe shall be installed in the wet well at a location approved by the Engineer or Utility Dept. The pipe shall extend to a depth of 6" above the base elevation and to a height approved by the Utility.

2. This pipe shall be used to house the pressure transmitter and protect it from mechanical damage.
3. The pipe shall be equipped with a 3/8" diameter stainless steel bolt at a point 1" above the bottom of the pipe. The pressure transmitter will rest on the bolt.
4. The pipe shall be attached to the wet well at a location directed by the Utility Department using stainless steel hardware.

5. The cable shall be supported using means approved by the manufacturer.

C. Perform electrical work as per the Electrical Specifications and as shown on the Drawings.

D. Remote Terminal Unit panels and other Control panels shall be manufactured in a UL panel shop in accordance with requirements of the most recent version of UL 508, and shall be properly UL labeled.

E. Provide as-built drawings and wiring diagrams.

F. Prior to Start-up of the facility, inspect, test and document that the control system is operational.

G. Calibrate components including but not limited to: analog devices, discrete devices, controllers, I/O modules and switches.

H. Provide written certification following Start-up, that all of the tests indicated in Section A above were conducted at the fabrication shop. The certification shall include the following:
1. Each test conducted shall be described.
2. The date the test was conducted shall be indicated.
3. Pass or fail shall be indicated.
4. Initials of technician conducting the test shall be indicated.

3.2 PROTECTION

A. Protect all electrical and control enclosures and equipment, including spare parts, from corrosion.

B. Panels located outdoors shall be suitable for that installation and shall be insulated and internally heated.

3.3 FIELD QUALITY CONTROL

A. Functional and Performance Testing:
1. Conduct on equipment installed per this specification.
2. Perform under actual or approved simulated operating conditions.
3. Test for a continuous 3-hour period without malfunction.

END OF SECTION

APPENDIX A

City of Wrangell Quarry Use Plan

The City & Borough of Wrangell (CBW) owns a parcel of land approximately a half mile from the project that contains an existing quarry into an exposure of rock. The CBW performed an engineered analysis to determine the suitability of the rock for quarrying operations. Rock samples were put through a series of laboratory tests, including LA Abrasion loss, Degradation loss, and Sodium Sulfate soundness.

The laboratory test results have resulted in the following:

- ATM 313 - Degradation Value of Aggregates: Sediment Height = 9.4, degradation Value = 18
- ASSHTO T 96 – resistance of Degradation of Small-Size Course Aggregate by Abrasion and Impact in the LA machine, using Grading B, with crushing: Loss = 19%
- ASTM C535 – Resistance of Degradation of Small-Size Course Aggregate by Abrasion and Impact in the LA machine, using Grading 1: Loss = 21%
- Sodium sulfate test by AASHTO T106 should be complete by next Friday.
- Fracture test results by AASHTO TP 61 were not provided

Requirements for Use of CBW Quarry:

1. Contractors who wish to utilize the CBW quarry rock are required to compare their project's specifications for processed rock materials to the results provided above for the available quarry rock.

2. Currently the site exhibits: a) timber and soil exposed at the top of the quarry faces, which will require development to access additional rock; b) a lack of pit floor space and an adequate quantity of benches to facilitate equipment access to certain areas for drilling and blasting. Contractors wishing to use the quarry site are required to develop access to the materials. Access may also require working around existing stockpiles of materials.

3. The CBW will charge a royalty at the rate of 10% of the quantity extracted by the Contractor. The 10% royalty shall consist of drilling, blasting, and stockpiling, within the quarry, 10% of the total quantity removed from the quarry. Royalty rates are very different than commodity market prices. Royalty gives the buyer (Contractor) the right to extract a resource, and it involves a minimal investment by the CBW. Additionally, oversight costs and management costs are responsibilities left to the Contractor.

4. An approved and comprehensive mining and management plan shall be designed and implemented, by the Contractor, to maximize the resource production, improve safety and stability during active uses, and facilitate reclamation of the site. This mining plan shall be submitted for approval prior to the commencement of mining.

5. Clearing and leveling of additional area may be necessary to accommodate processing and stockpiling of the resource, including rock of various gradations, overburden, and timber. All mining development and operations shall be performed by the Contractor.

6. When space is available, mining may be allowed by additional Contractors, for use on other projects.

7. The Contractor shall assess the availability of the CBW quarry pit floor space. If additional space is needed, the Contractor is required to coordinate use of the adjacent land owner's pit floor, to accommodate the Contractor's processing and staging. The Contractor will also be responsible for coordination with the adjacent land owner during extraction and processing.

Alternatively, the State's Wrangell Airport Quarry may be available as both a local rock source and a staging area. Contractors interested in exploring this option are encouraged to contact the State for their application and permit requirements, as well as for their usage fees and royalty requirements. The contact for the State's airport quarry is Lynette Campbell, DOT, Aviation Leasing Agent, Tel: 907-465-1785.

APPENDIX B

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898, CEPOA-RD
JBER, ALASKA 99506-0898

REPLY TO
ATTENTION OF:

NOV 14 2011

Regulatory Division
POA-2010-656-M1

City and Borough of Wrangell
Attention: Ms. Amber Al-Haddad
Post Office Box 531
Wrangell, Alaska 99929

Dear Ms. Al-Haddad:

Enclosed is the signed Department of the Army (DA) permit modification, file number POA-2010-656-M1, Zimovia Strait. This is the 1st permit modification of the original permit. Also enclosed is a Notice of Authorization that should be posted in a prominent location near the authorized work.

If changes to the plans or location of the work are necessary for any reason, plans must be submitted to us immediately. Federal law requires approval of any changes before construction begins.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Also enclosed is a Notification of Administrative Appeals Options and Process and Request for Appeal form regarding this DA Permit Modification (see section labeled "Initial Proffered Permit").

For additional information, please contact me at by email at Serena.E.Sweet@usace.army.mil, by telephone at (907) 753-2819; toll free from within Alaska at (800) 478-2712, or by mail at the letterhead address.

Sincerely,

Serena Sweet
Project Manager

Enclosures

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, ALASKA
REGULATORY DIVISION
P.O. BOX 6898, CEPOA-RD
JBER, ALASKA 99506-0898

REPLY TO ATTENTION OF:

NOV 14 2011

Regulatory Division
POA-2010-656-M1

DEPARTMENT OF THE ARMY
PERMIT MODIFICATION

Department of the Army permit number POA-2010-656-M1, Zimovia Strait, was issued to the City and Borough of Wrangell, to conduct the following work subject to U.S. Army Corps of Engineers Regulatory jurisdiction:

"Discharge of dredged and fill material into 6.96 acres of jurisdictional wetlands and 123 lineal feet of perennial stream to facilitate the construction of a community hospital and future medical support facilities."

This is the 1st modification of the original permit. The permit is hereby modified to authorize the applicant to conduct the following work:

1. Discharge 100 cubic yards of fill material into 0.03 acre of wetland habitat to widen and improve Wood Street from Zimovia Highway to the facility entry driveway. Additional stormwater control features would be installed to improve the system.
2. Replace an existing 27-foot long culvert with a 60-inch diameter corrugated steel pipe culvert 60-foot long. Also, up to 120 linear feet of stream will be rerouted and replaced with approximately 75 linear feet of new stream channel in order to connect to the new culvert.
3. Discharge 6,000 cubic yards of fill material into 0.47 acre of wetland habitat to extend Etolin Street and upgrade the utilities between the facility and the existing end of Etolin Avenue.
4. Utilities (including water mains and a fire hydrant, and electrical and telephone lines) will also be installed. All impacts associated with these utilities will be within the existing or proposed roadways.

The work will be performed in accordance with the enclosed plans, sheets 1-15, dated November 2011, which are incorporated in and made a part of this Permit Modification.

The project is located within Section 30, T. 62 S., R. 84 E., Copper River Meridian; USGS Quad Map Petersburg B-2; Latitude 56.4652° N., Longitude - 132.3718° W.; at the Wrangell Medical Center Site, near Wrangell, Alaska.

The following conditions apply to this permit modification:

1. Permittee shall mitigate for unavoidable impacts to waters of the U.S., as follows:

a. Conserve in perpetuity a minimum of 1.25 acres of land on property identified by the applicant as "Volunteer Park" to compensate for the permanent loss of 0.5 acres of jurisdictional wetlands.
b. Conserve in perpetuity a minimum of 0.08 acres of land on property identified by the applicant as "Volunteer Park" to compensate for the permanent loss of 120 linear feet of perennial stream.

2. Permittee shall execute and cause to be recorded with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to or interest in real property restrictive covenants and new plats for the conservation area, as specified in permit special condition 1, acceptable to the Corps of Engineers for the purpose of maintaining the conservation areas, as shown on the recorded plats, in their natural state in perpetuity. The permittee shall provide a copy of the recorded restrictive covenants and the new plats showing the conservation areas to the Corps of Engineers prior to the commencement of work authorized by this permit and prior to the sale, conveyance, or subdivision of any property. The following language shall be incorporated into the restrictive covenant and plat notes:

No person or entity shall perform any of the following activities on such conservation areas:

a. fill, grade, excavate or perform any other land disturbing activities
b. cut, mow, burn, remove, or harm any vegetation
c. construct or place any fill trails, walkways, buildings, mobile homes, signs, utility poles or towers, or any other permanent or temporary structures with the exception of pile supported elevated walkways and signs used for the purpose of environmental education.
d. drain or otherwise disrupt or alter the hydrology or drainage ways of the conservation area
e. dump or store soil, trash, or other waste
f. park any type of motorized or non-motorized vehicles or store any other objects
g. graze or water animals, or use for any agricultural or horticultural purpose

This covenant is intended to ensure continued compliance with a mitigation condition of a Clean Water Act authorization issued by the United States of America, U.S. Army Corps of Engineers, Alaska District, permit number POA-2010-656-M1, and therefore may be enforced by the United States of America. This covenant is to run with the land, and shall be binding on the Owner, and all parties claiming under it. The permittee shall enforce the terms of the restrictive covenant and shall take no action on the conservation area described in the covenants inconsistent with the terms thereof. This covenant cannot be amended.

All other conditions under which the subject authorization was made remain in full force and effect.

This authorization and the enclosed modified plans should be attached to the original permit. Also enclosed is a Notice of Authorization that should be posted in a prominent location near the authorized work.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Serena Sweet
Project Manager

This notice of authorization must be conspicuously displayed at the site of work.

United States Army Corps of Engineers
ZIMOVIA STRAIT

A permit to: UPGRADE ACCESS AND PROVIDE A UTILITY CORRIDOR

at: WRANGELL MEDICAL CENTER SITE

has been issued to: THE CITY AND BOROUGH OF WRANGELL

on: NOV 14 2011 **and expires on:** MARCH 31, 2016

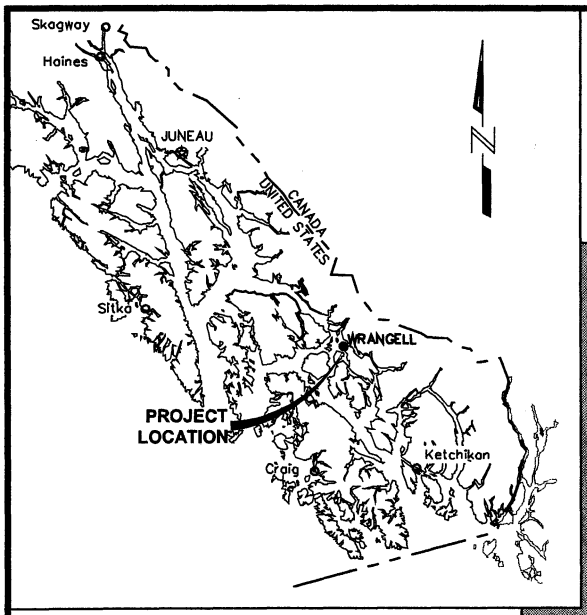
Address of Permittee: POST OFFICE BOX 531, WRANGELL, AK 99929

Permit Number:

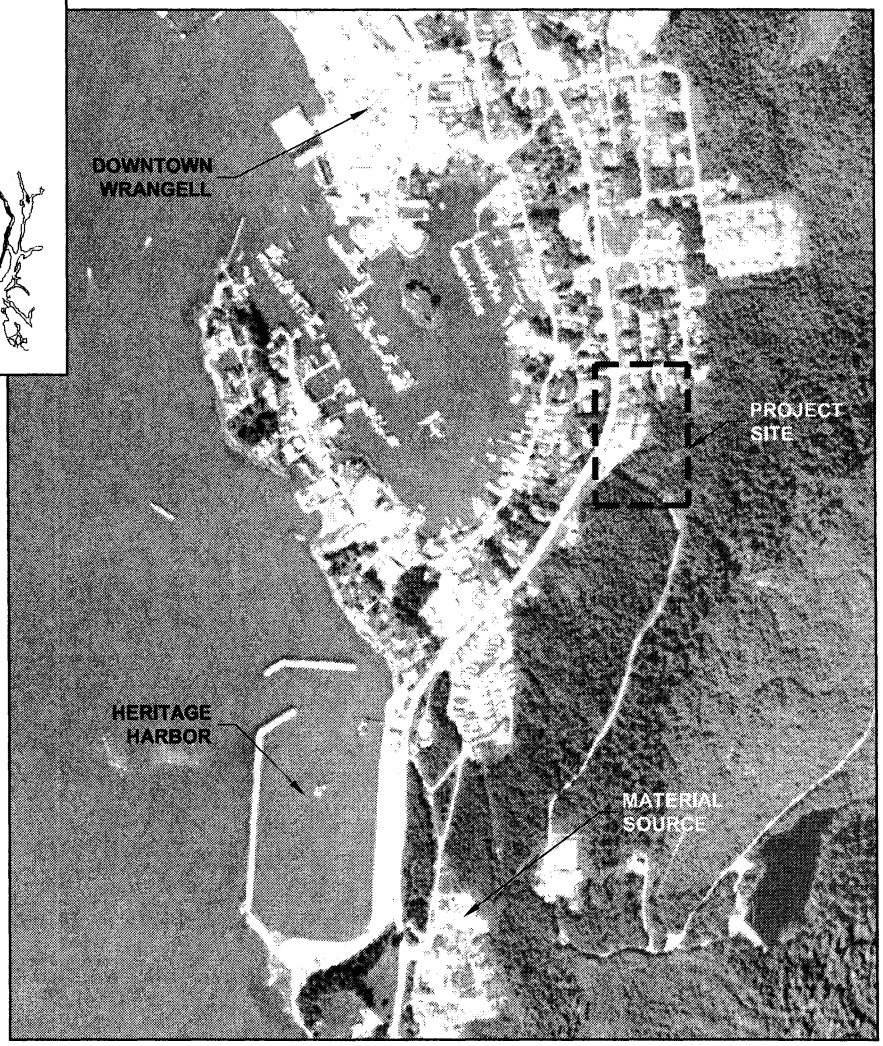
POA-2010-656-M1

FOR: ***District Commander***
SERENA SWEET
PROJECT MANAGER
REGULATORY DIVISION

ENG FORM 4336, Jul 81 (33 CFR 320-330) EDITION OF JUL 70 MAY BE USED (Proponent: CECW-O)



LOCATION MAP



VICINITY MAP

SHEET INDEX

1	PROJECT LOCATION
2	SITE PLAN AND WETLANDS MAP
3	WOOD STREET SITE PLAN
4	ETOLIN STREET SITE PLAN
5	ETOLIN STREET WETLAND PLAN
6	WOOD STREET WETLAND PLAN
7	ROADWAY TYPICAL SECTIONS
8	SURFACING DETAILS
9	FISH STREAM PLAN
10	FISH STREAM PROFILE
11	CULVERT DETAILS
12	FISH CULVERT DETAILS
13	FISH STREAM REALIGNMENT DETAILS
14	TEMPORARY CULVERT BYPASS DETAILS
15	TEMPORARY CULVERT BYPASS OPTION DETAILS

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

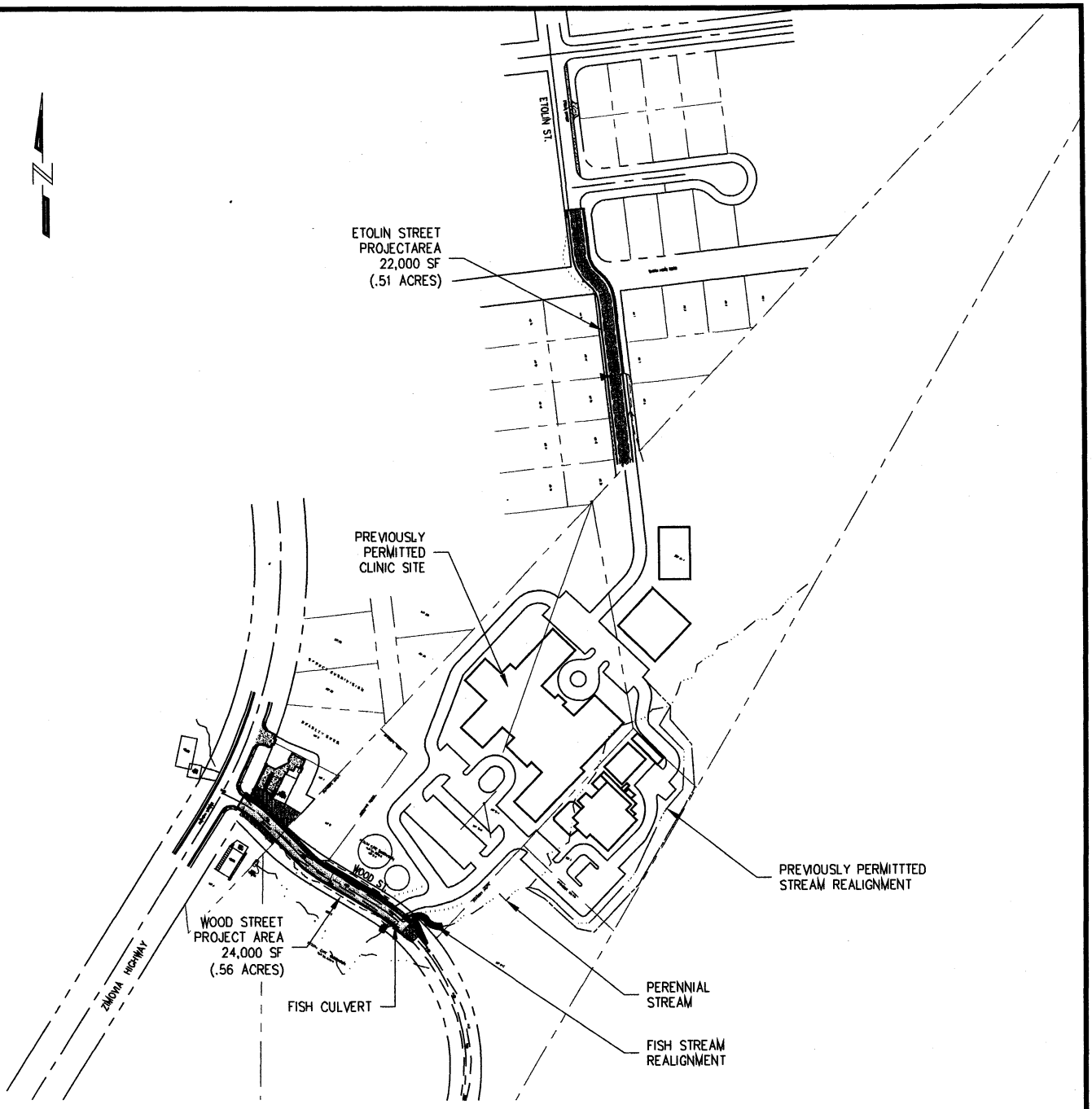
PROJECT LOCATION

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 1 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P1.dwg



SITE PLAN

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

SITE PLAN AND WETLANDS MAP

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
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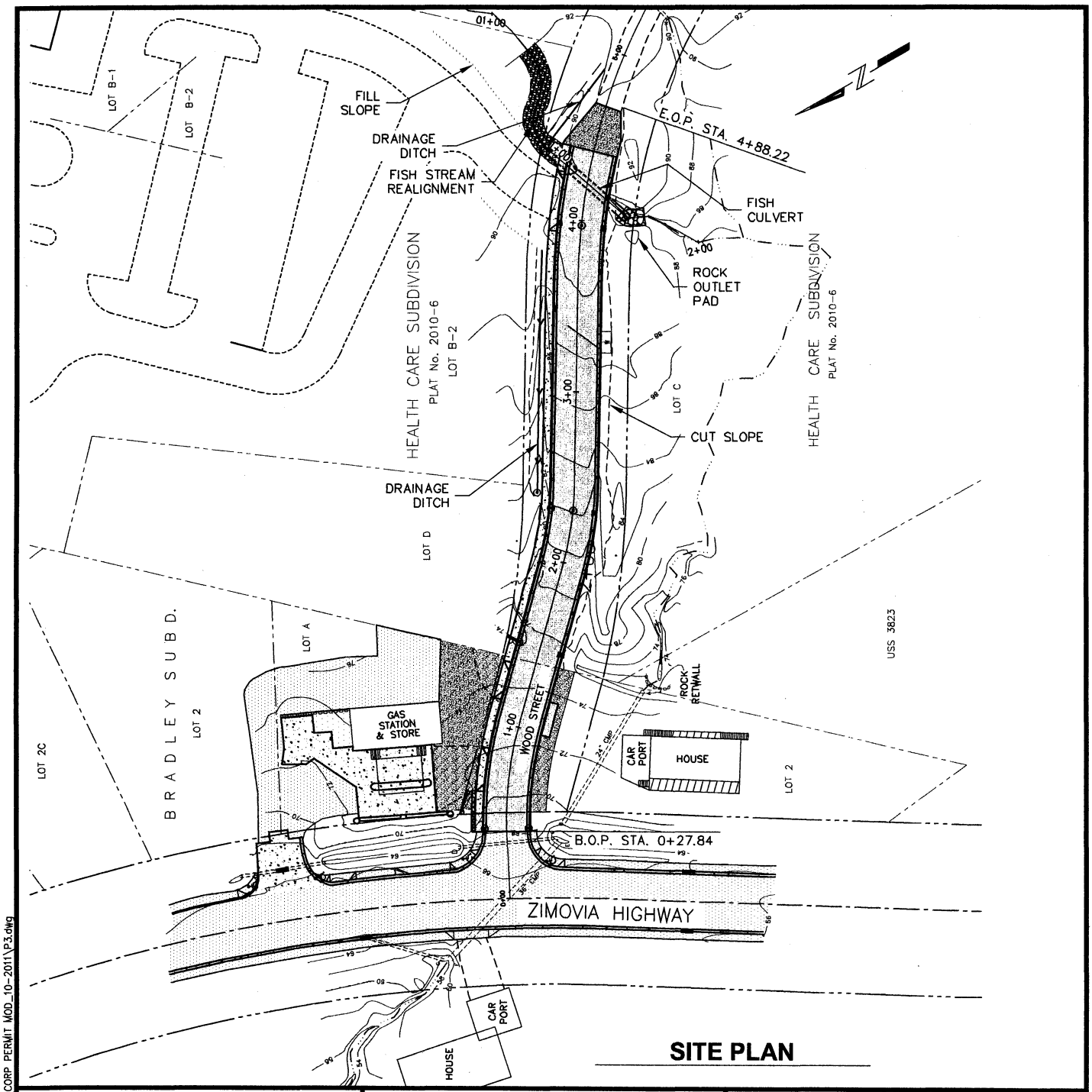
Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P2.dwg



SITE PLAN

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PREMIT MODIFICATION

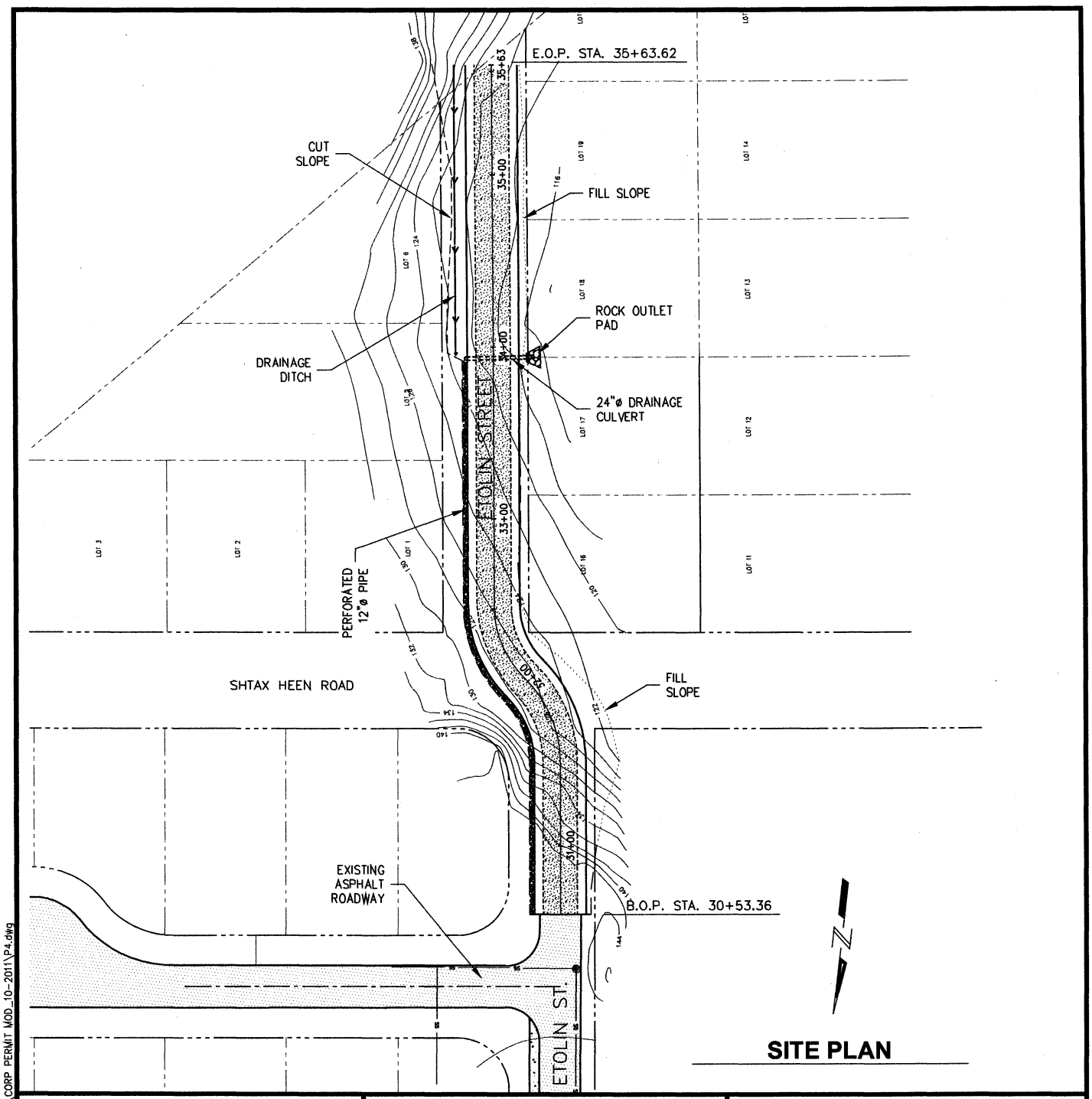
WOOD STREET SITE PLAN

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 3 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P3.dwg



SITE PLAN

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

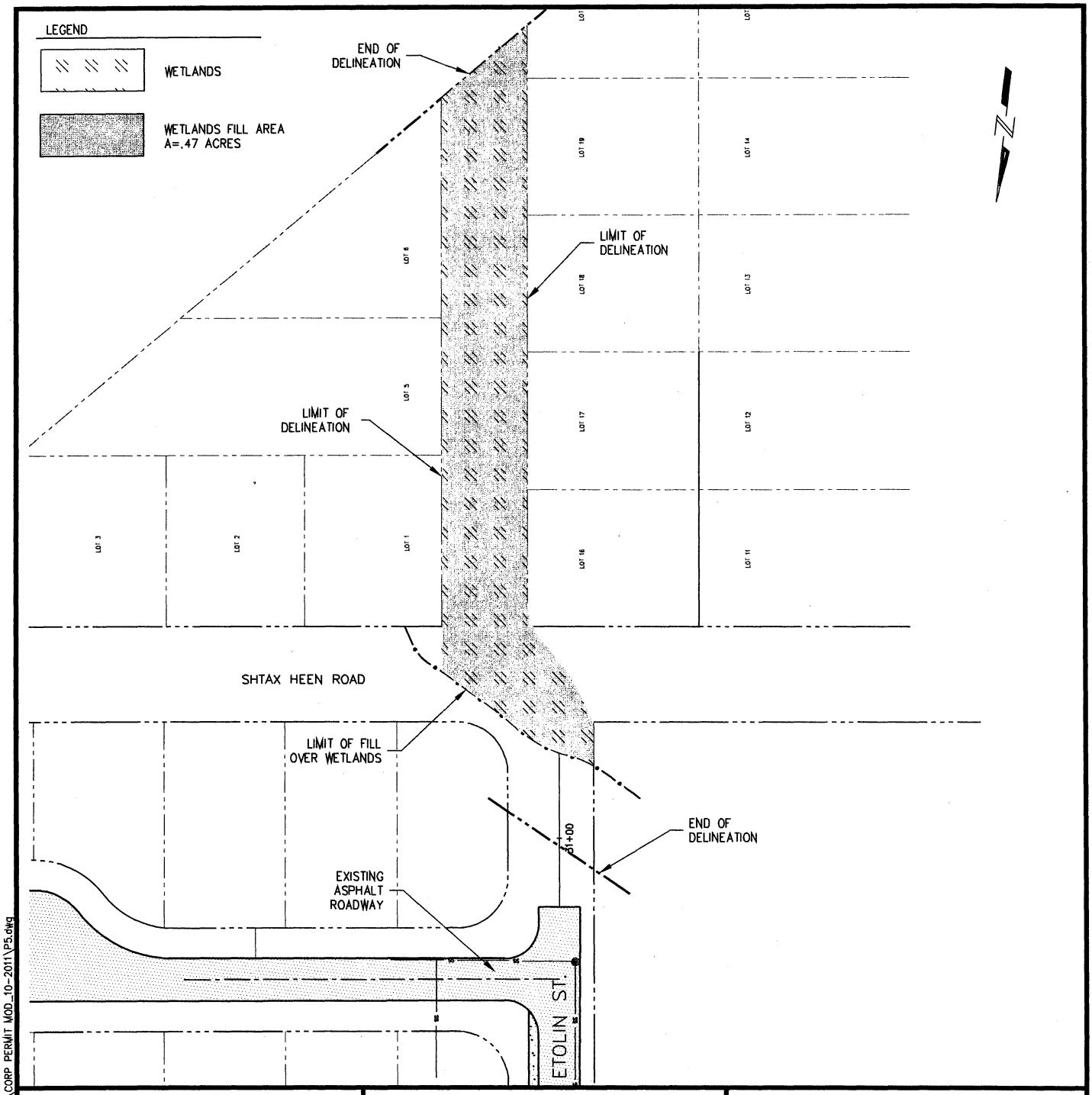
ETOLIN STREET SITE PLAN

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 4 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P4.dwg



PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

ETOLIN STREET WETLAND PLAN

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
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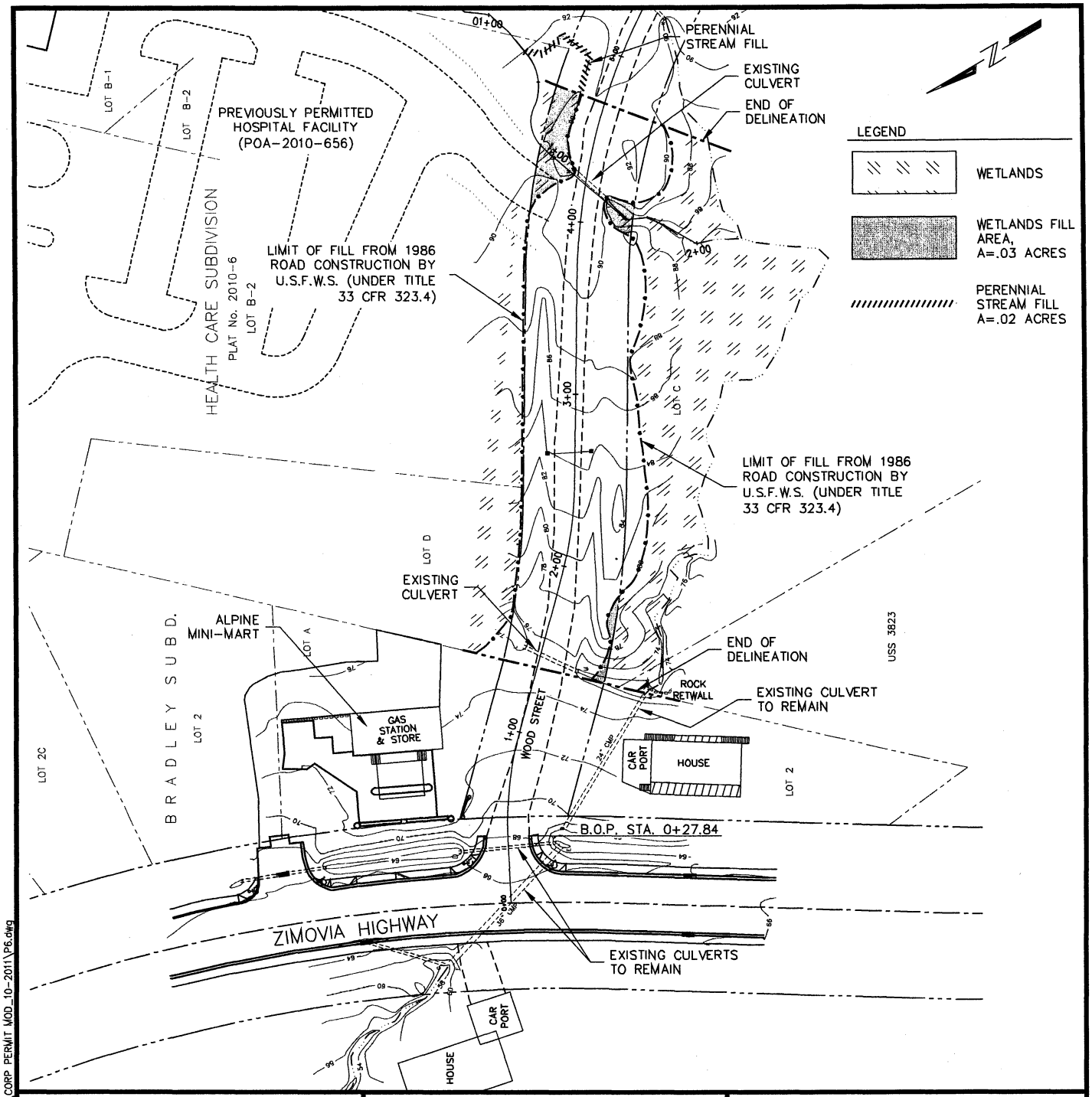
SHEET 5 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P5.dwg



PERMIT No.:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

WOOD STREET WETLAND PLAN

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
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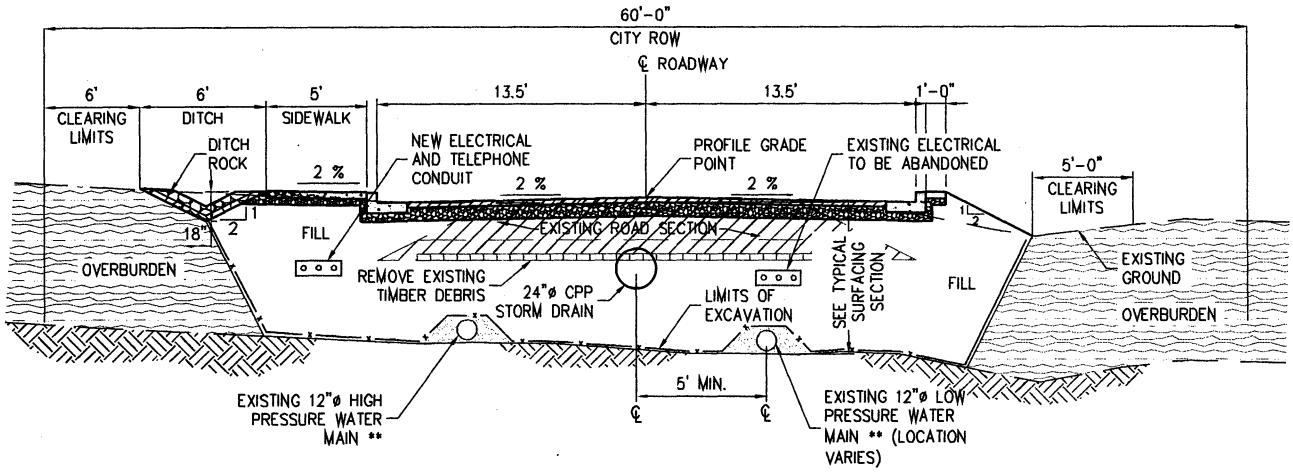
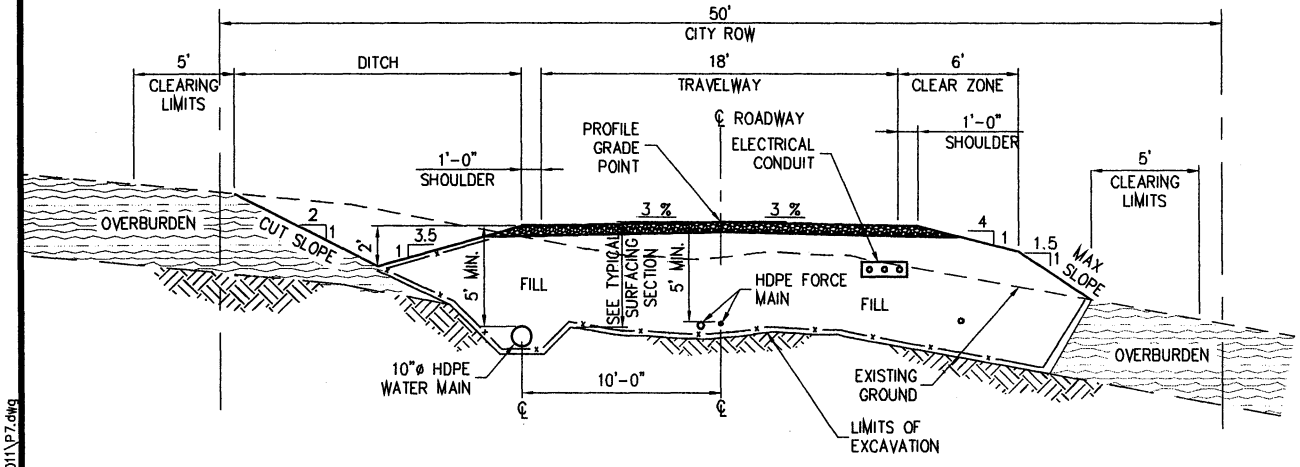
Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P6.dwg



WOOD STREET TYPICAL SECTION



ETOLIN STREET TYPICAL SECTION

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

ROADWAY TYPICAL SECTIONS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
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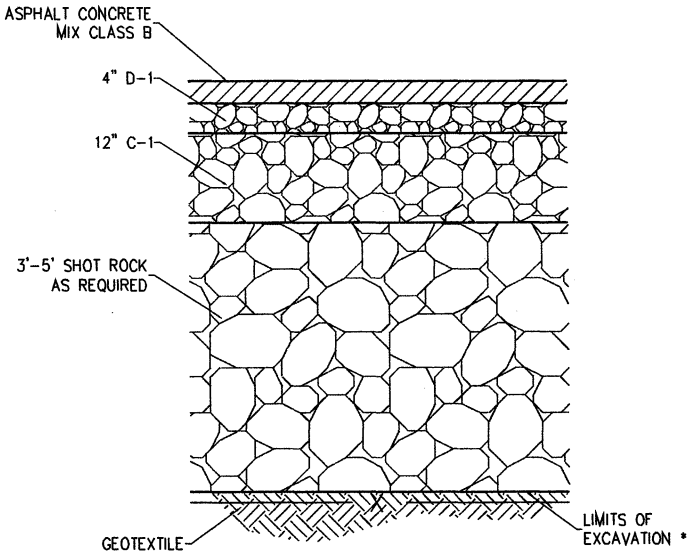
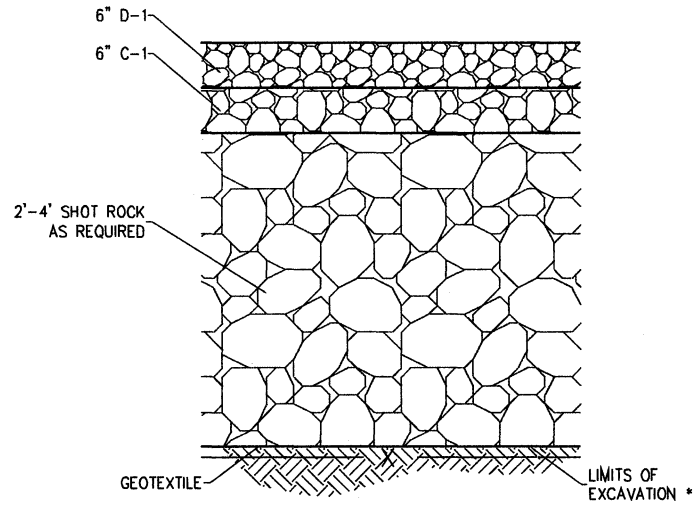
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 7 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P7.dwg



WOOD STREET SURFACING SECTION



ETOLIN STREET SURFACING SECTION

* EXCAVATE TO COMPETENT BEARING LAYER
** PROTECT UTILITIES DURING EXCAVATION

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

SURFACING DETAILS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
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AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
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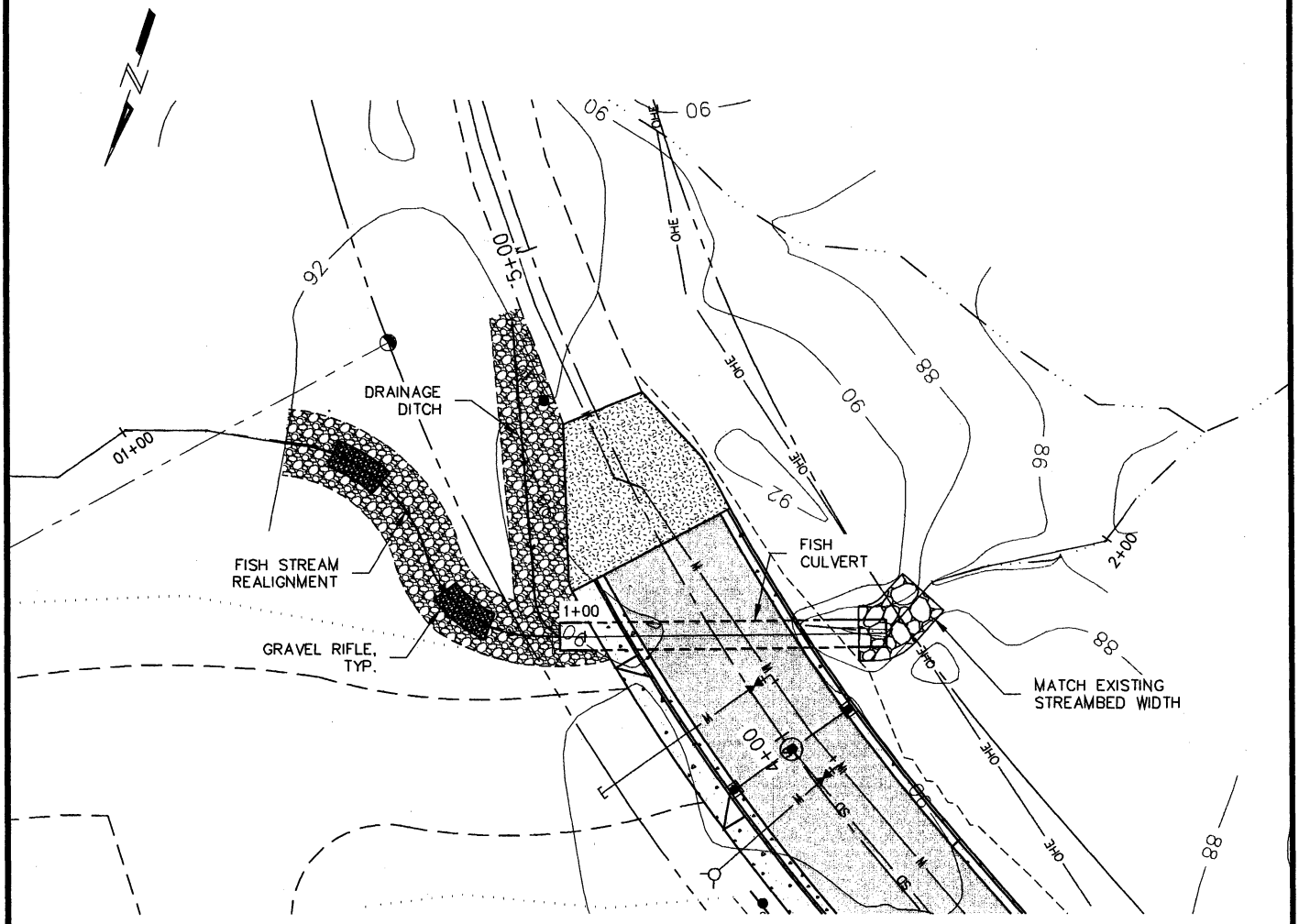
SHEET 8 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\PB.dwg



WOOD STREET
FISH CULVERT PLAN

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

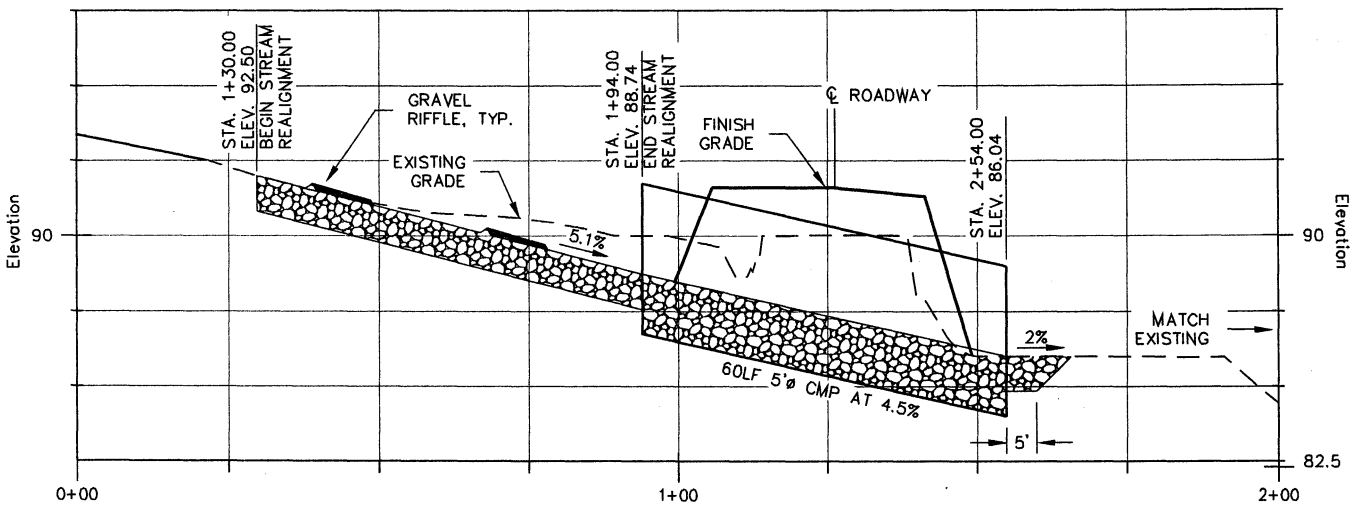
FISH STREAM PLAN

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 9 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P9.dwg



WOOD STREET
FISH CULVERT PROFILE

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

FISH STREAM PROFILE

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
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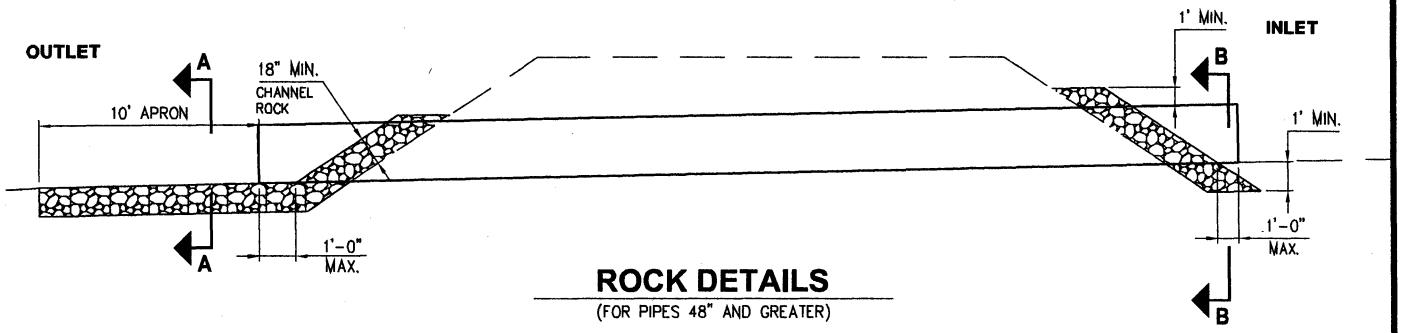
LAT. 56D 27' 46",
LONG. 132D 22' 28

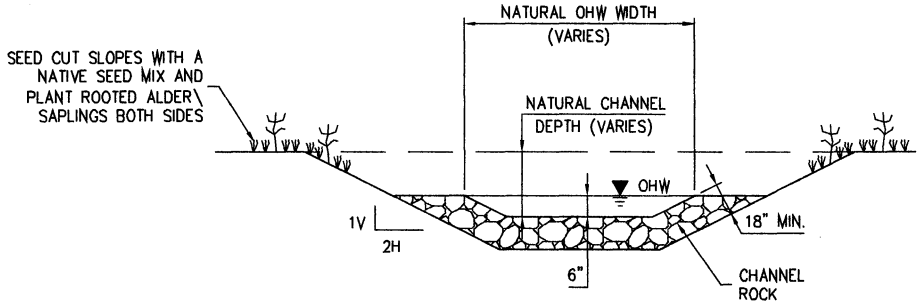
SHEET 10 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P10.dwg

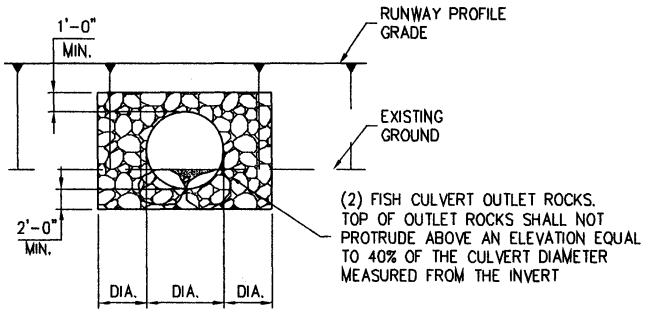


ROCK DETAILS

(FOR PIPES 48" AND GREATER)



SECTION A-A



SECTION B-B

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

CULVERT DETAILS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
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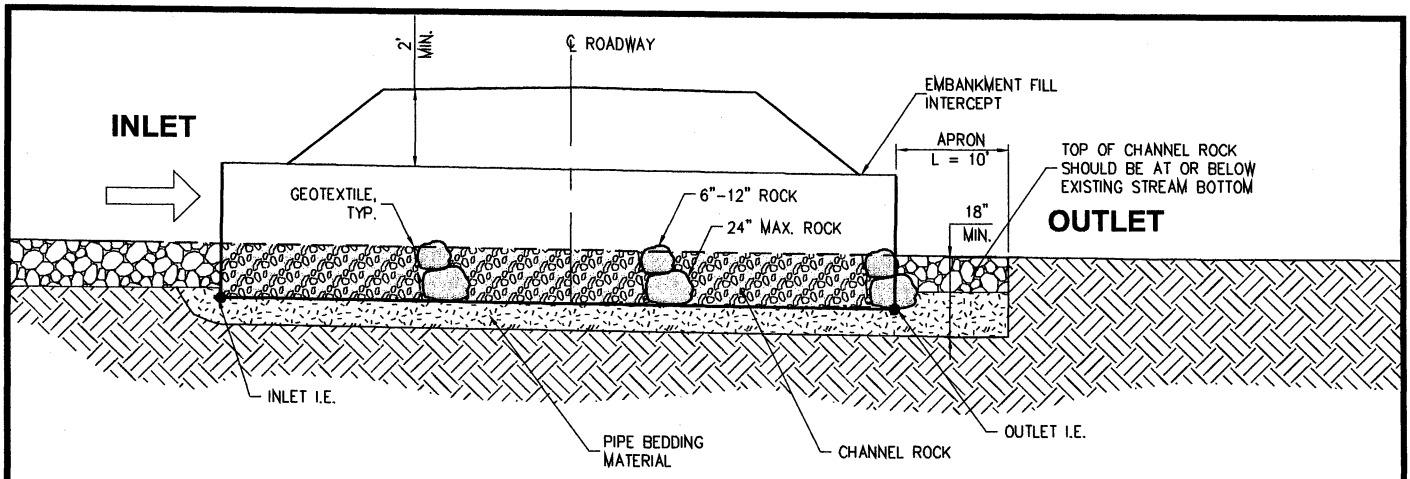
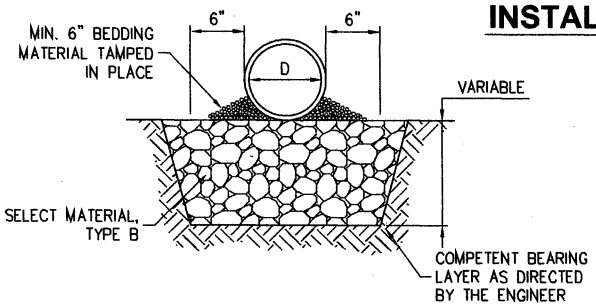
SHEET 11 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P11.dwg



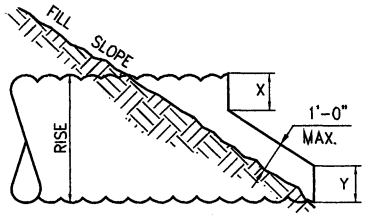
FISH CULVERT INSTALLATION DETAIL

NOT TO SCALE



STABLE SUBGRADE

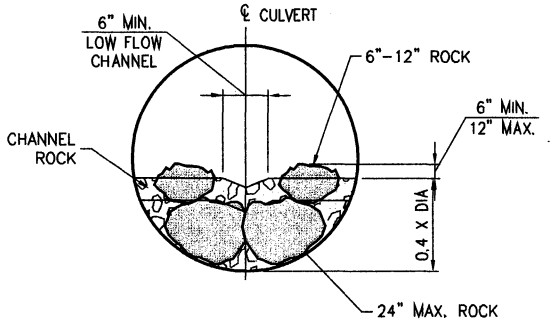
SUBEXCAVATION REQUIRED



BEVELED END DETAIL

NOT TO SCALE

1) STEP BEVEL ALL PIPES.
2) BEVEL OF PIPE SHALL MATCH THE FILL SLOPE SHOWN ON THE DRAWINGS.
3) THE ENDS OF CULVERT SHALL NOT BE CUT ON A SKEW UNLESS SHOWN ON THE DRAWINGS.
4) X = 1/4 D OR MANUFACTURERS STANDARDS.
5) Y = 2'



FISH CULVERT CROSS SECTION

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

FISH CULVERT DETAILS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
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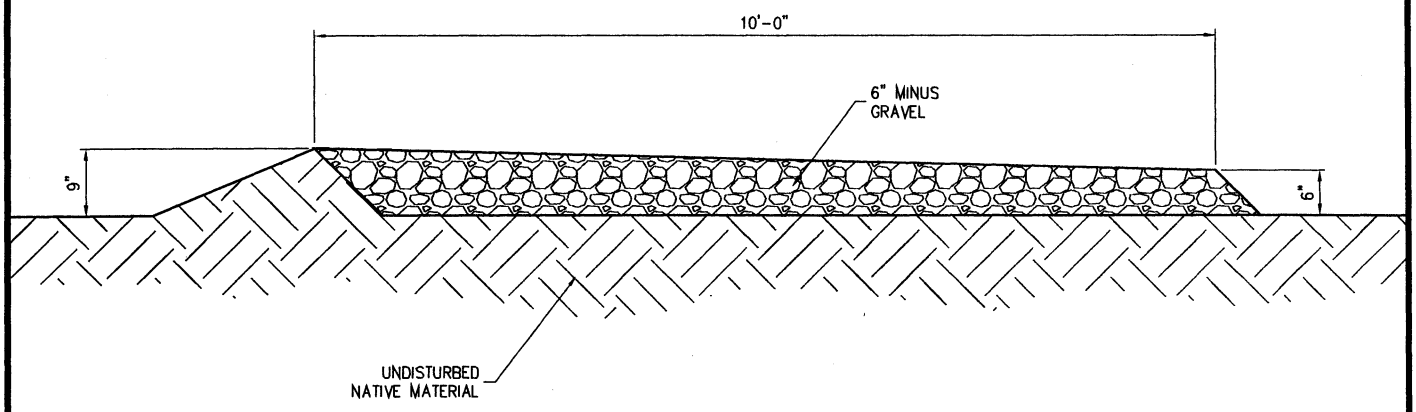
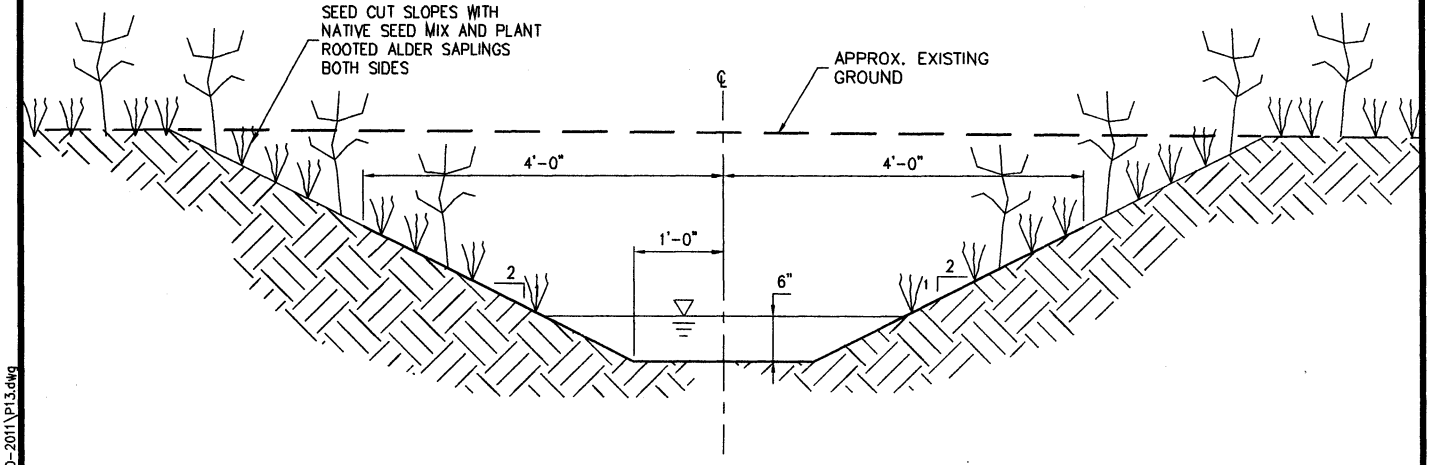
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 12 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P12.dwg



GRAVEL RIFFLE DETAIL



TYPICAL FISH STREAM SECTION

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

FISH STREAM REALIGNMENT DETAILS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

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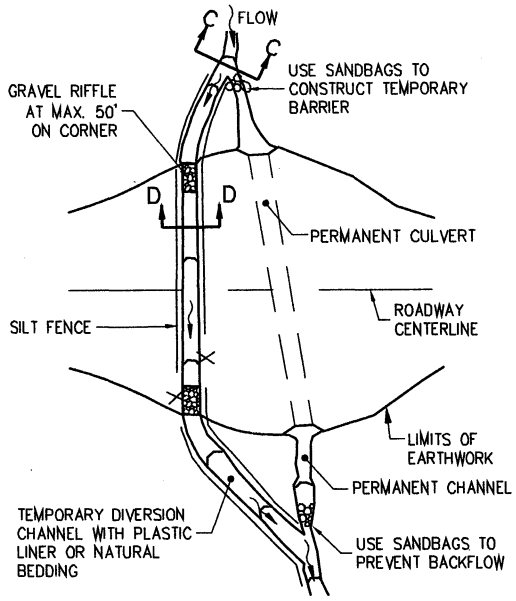
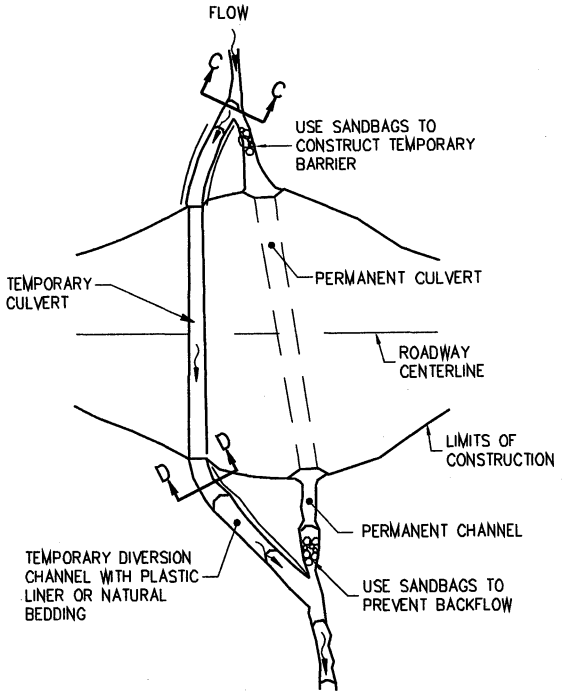
SHEET 13 **of** 15 **DATE:** OCT. 2011

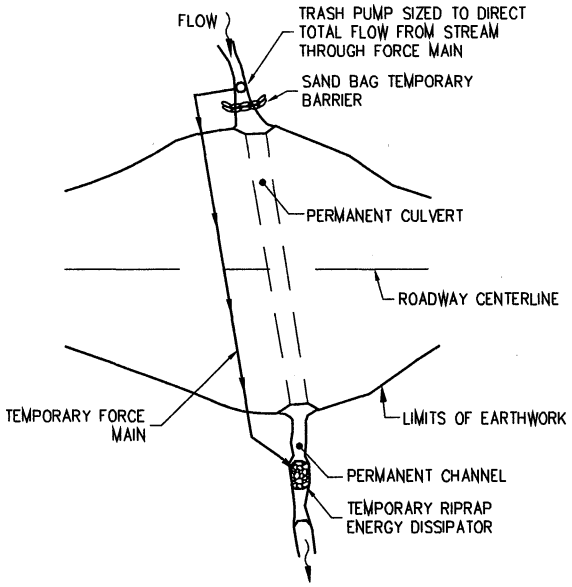
Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P13.dwg



TEMPORARY DIVERSION CHANNEL



TEMPORARY CULVERT DIVERSION



TEMPORARY TRASH PUMP DIVERSION

NOTE:

1) THESE OPTIONS WOULD BE AVAILABLE TO THE CONTRACTOR IF NECESSARY DURING CONSTRUCTION.
2) IF A TRASH PUMP IS USED DURING CONSTRUCTION THE INTAKE MUST BE OPERATED, AND MAINTAINED TO PREVENT FISH ENTRAPMENT, ENTRAINMENT, OR INJURY WITH THE USE OF PERFORATED PLATE AND WOVEN WIRE HAVING A MESH SIZE NOT GREATER THAN 3/32 INCHES OR PROFILE BAR AND WEDGEWIRE HAVING OPENINGS NOT GREATER THAN 1.75 MM. APPROACH VELOCITIES SHALL NOT EXCEED A PASSIVE VELOCITY OF 0.2 FEET PER SECOND (FPS) OR AN ACTIVE VELOCITY OF 0.4 FPS

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

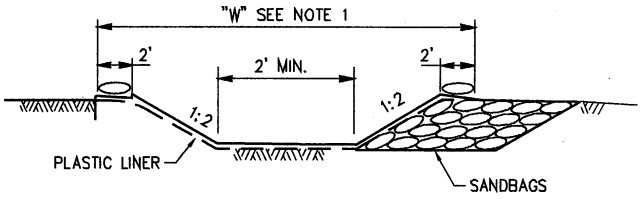
ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION

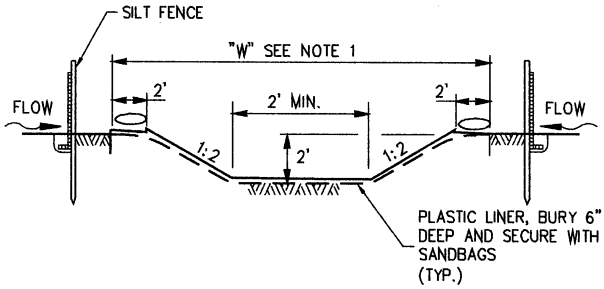
TEMPORARY CULVERT BYPASS OPTION DETAILS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

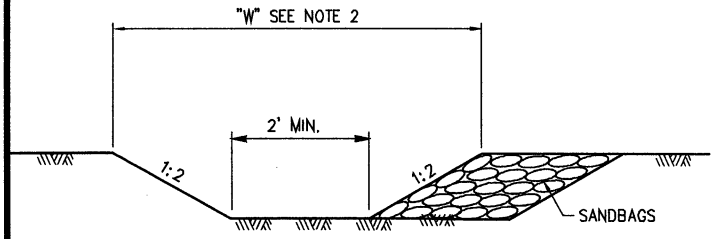


SECTION C-C

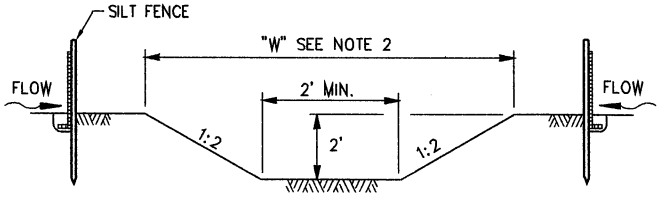


SECTION D-D

PLASTIC LINED DIVERSION CHANNEL



SECTION C-C



SECTION D-D

RIPRAP LINED DIVERSION CHANNEL

NOTE:
1) "W" - MATCH STREAM WIDTH TO EXISTING.

2) USE PLASTIC LINER ALONG THE ENTIRE LENGTH AND WIDTH OF THE TEMPORARY DIVERSION CHANNEL.

3) CONSTRUCT CHANNEL AT A MINIMUM GRADE OF 0.5 PERCENT.

4) DO NOT CONSTRUCT WITH LONGITUDINAL JOINTS IF USING A PLASTIC LINER. BURY THE UPSTREAM EDGE OF THE LINER A MINIMUM OF 6" DEEP AND SECURE SANDBAGS.

PURPOSE:
PERMIT No. POA-2010-656

DATUM: 0.0' M.L.L.W.

ADJACENT PROPERTY OWNERS:
STEVE PRUNELLA
DELORES BRADLEY
CITY OF WRANGELL
PAUL TORGRAMSON

PERMIT MODIFICATION
TEMPORARY CUVLERT BYPASS OPTION DETAILS

APPLICATION BY:
CITY AND BOROUGH OF WRANGELL
P.O. BOX 531
WRANGELL, AK. 99929

PROPOSED:
WOOD STREET IMPROVEMENT
AND ETOLIN STREET EXTENSION
AT: WRANGELL, ALASKA
T.62.S, R.84E, SEC. 30
LAT. 56D 27' 46",
LONG. 132D 22' 28

SHEET 15 **of** 15 **DATE:** OCT. 2011

Drawings\2011\114018.01 - Wood Street Improvement\CORP PERMIT MOD_10-2011\P15.dwg

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: City and Borough of Wrangell	File Number: POA-2010-656-M1	Date: November 15, 2011
Attached is:		See Section below
XXX	INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

THIS REQUEST FOR APPEAL FORM MUST BE RECEIVED BY: JANUARY 15, 2012

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at: http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the District Engineer. Your objections must be received by the District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or, (c) not modify the permit, having determined that the permit should be issued as previously written. After evaluating your objections, the District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer. This form must be received by the Division Engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer. This form must be received by the Division Engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION (JD): You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer. This form must be received by the Division Engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the Preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

In order for a Request For Appeal to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the Notice of Appeal Process. It is not necessary to submit a Request For Appeal form to the Division office if you do not object to the decision.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Serena E. Sweet, Project Manager
Alaska District Corps of Engineers
CEPOA-RD-S
P.O. Box 6898
JBER, AK 99506-0898
(907) 753-2819
(800) 478-2712 (toll free in AK)

If you only have questions regarding the appeal process you may also contact:

Commander
USAED, Pacific Ocean Division
ATTN: CEPOD-PDC/Linda Hihara-Endo, P.E.
Building 525
Fort Shafter, HI 96858-5440

To submit this form, mail to the address above

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH
DRINKING WATER PROGRAM

410 Willoughby Avenue, Suite303
P.O. Box 111800
Juneau, Alaska 99811-1800
Phone: (907) 465-5317
Fax: (907) 465-5362
http://www.dec.state.ak.us/eh/dw

October 14, 2011

Robert Badgett, P.E.
R & M Engineering - Ketchikan Inc.
355 Carlanna Lake Road, Suite - 200
Ketchikan, Alaska 99901

Re: Etolin Street and ACIS Clinic Utilities Water Line
Wrangell Community Public Water System: PWSID # 120143
Conditional Approval to Construct

Dear Mr. Badgett:

The Department has reviewed information submitted on September 15, 2011, requesting approval to construct water distribution lines on and near Etolin Street and ACIC Clinic area in Wrangell. Your request was reviewed in accordance to the State of Alaska Drinking Water Regulations, 18 AAC 80. A conditional approval to construct is granted.

Project Description:

According to the submittal, the project consists of approximately 1675 linear feet of new 10-inch diameter HDPE water line for the currently underdeveloped lots fronting Etolin Street and two 6-inch water stubs for the future connections to the proposed hospital and ACIS Clinic facilities. The 10-inch new water line will be connecting to the existing water main in the Wood Road and running north through the medical campus facility re-connecting to an existing water stub out in the Etolin Street providing water to the hospital and clinic while creating an additional loop in the existing water distribution system.

Approval to Construct and Conditions:

The construction plans are approved with following conditions:

1. Deviations from approved plans which affect capacity, flow, operation, major design of units, materials of major system components, or separation distances, must be approved by the DEC in writing prior to their implementation.

2. This approval is contingent upon your receipt of any other state, federal or local authorizations which are required for your project. You are required to obtain all other necessary authorizations before proceeding with your project. Note that the disposal of

construction dewatering waters and waters containing high amounts of disinfectant resulting from the disinfection process may require a permit.

3. All materials used in the construction of this water system that will be in contact with potable water must be approved for that used by the National Sanitation Foundation (NSF), Underwriter Laboratories (UL), or an equivalent organization that evaluates products using NSF Standard 61. In the absence of ANSI/NSF 61 certification, material must be approved by the Department for potable water contact on a case-by-case basis.

4. You are advised that if this development will require placing fill in wetlands or working in a stream, river or lake, permits from the U.S. Army Corps of Engineers and the Alaska Department of Fish and Game may be required. A Coastal Projects Questionnaire will help you identify other permits and approvals that may be required for your project.

5. If the applicant fails to construct, install, alter, renovate, or improve the public water system within two (2) years after the department issues an approval to construct under Drinking Water Regulations, 18 AAC 80.210(c), the approval is void and the plans and information required under 18 AAC 80.210(a) must be resubmitted for Department review and approval. If during the two-year period the site conditions, plans and information, and requirements in this chapter do not change, and if the applicant pays the fee required by 18 AAC 80.1910(b)(12), the Department will grant the applicant an extension.

6. Approval to operate the project will require the submittal of a set of the final design document, sealed, signed, and dated by the registered engineer serving as project manager. These record drawings must include verification that all applicable requirements were met during the construction and that the water system has been properly flushed, pressure tested, and disinfected in accordance with ANSI/AWWA Standards C651-99. Upon approval of engineered record drawings, this office will issue a completed 'Construction and Operation Certificate." A public water system that has received Department approval for construction may not serve water for public consumption until the Department has issued a completed "Construction and Operation Certificate" or granted interim operational approval.

Interim Approval to Operate:

In order to receive Interim Approval to Operate, please provide following:

1. Verification that the construction/installation was completed under the direction of a registered engineer; project was substantially completed according to the approved plans including conditions.

2. Verification that only lead-free pipe, flux, and solder was used in the construction of the water system.

3. Confirmation that the system has been successfully pressure tested.

4. Verification that the new water mains have been disinfected and flushed in accordance with the most recent version of AWWA Standard 651. Provide copies of the analytical test reports for samples taken from the finished water confirming that the system is free from coliform bacteria.

5. Provide verification that all pipe and all material in contact with potable water is NSF 61 certified.

Final Approval to Operate:

Final Approval to Operate must be completed within 90 days after receiving Interim Approval to Operate. As a part of your request for Final Approval to Operate, please do the following:

Provide record drawings, stamped, and signed by a registered engineer confirming that the system meets the requirements of 18 AAC 80. "Record drawings" refers to the original plans prepared for construction and departmental approval, revised to reflect how the system was constructed or installed. Also meet conditions of Interim Approval to Operate.

Approval Limitations:

This approval does not imply the granting of additional authorizations, nor obligates any federal, state, or local regulatory body to grant required authorizations. This is not an approval of omissions or oversights by this office or noncompliance with any applicable regulation. The Department's approval does not guarantee correctness of the functional design or waiver the owner's responsibility for continued compliance with regulations.

Appeal Process:

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195- 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. **Informal review requests** must be delivered to the Division Director, Kristin Ryan, 555 Cordova St., Anchorage, Alaska 99501, within 15 days of the permit decision. **Adjudicatory hearing requests** must be delivered to the Commissioner of the Department of Environmental Conservation, Larry Hartig, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days of the permit decision. If a hearing is not requested within 30 days, the right to appeal is waived. More information on the Department's administrative appeals process can be found at the following website: http://www.dec.state.ak.us/commish/ReviewGuidance.htm.

If you have any questions, please call me at (907) 465-5317.

Sincerely,

David Khan

David Khan, P.E.
Environmental Engineer

Enclosure: Construction and Operation Certificate (Construction portion signed)

cc: Eric Burg, Environmental Specialist/ADEC-Soldotna
Carl Johnson, Public Works Director/Wrangell
Joran Freeman/Engineering Associate/DW/DEC-Juneau

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CONSTRUCTION AND OPERATION CERTIFICATE
FOR
PUBLIC WATER SYSTEMS

PWSID 120143

A. APPROVAL TO CONSTRUCT

Plans for the construction or modification of Etolin St/ACIS Clinic Water Line

1675 ft 10" HDPE waterline public water system located in

Wrangell , Alaska, submitted in accordance with 18 AAC 80.300

by Robert Badgett, PE/R&M Engineering-Ketchikan/ 907.225.7917 have been reviewed and are

☐ approved.

☒ conditionally approved. (See letter dated 10.14.2011)

David Khan — Environmental Engineer — 10/14/2011

BY David Khan, PE | TITLE | DATE

If construction has not started within two years of the approval date, this certificate is void and new plans and specifications must be submitted for review and approval before construction.

B. APPROVED CHANGE ORDERS

Change (contract order number or descriptive reference): Approved by: Date:

C. APPROVAL TO OPERATE

The "APPROVAL TO OPERATE" section must be completed and signed by the Department before this system is made available for use.

The construction of the _____ public water system was completed

on _____ (date). The system is hereby granted **interim** approval to operate for 90 days following the completion date.

BY | TITLE | DATE

As-built/record drawings, submitted to the Department, or an inspection by the Department, have confirmed that the system was constructed according to the approved plans. The system is hereby granted final approval to operate.

BY | TITLE | DATE

Distribution: 1. Retain original for project file
2. Make copies for distribution

STATE OF ALASKA

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WASTEWATER DISCHARGE PERMIT PROGRAM

SEAN PARNELL, GOVERNOR
410 Willoughby Avenue, Suite 303
P.O. Box 111800
Juneau, Alaska 99811-1800
PHONE: (907) 465-5300
FAX: (907) 465-5274
http://www.state.ak.us/DEC/

October 26, 2011

Robert Badgett, P.E.
R&M Engineering – Ketchikan, Inc.
355 Carlanna Lake Road
Ketchikan, Alaska
99901

Re: Approval to Construct Authorization. Etolin Street Sewer System Improvements, Wrangell. ADEC Plan Tracking Number **8794**.

Dear Mr. Badgett:

The department has reviewed the engineering plans submitted for the referenced project. Approval is hereby given to construct the proposed engineered system. The Etolin Street project consists of approximately 600 linear feet of 8" SDR 35 PVC sewer main, 1700 linear feet of 4" HDPE sanitary force main, 500 linear feet of 1-1/2" HDPE sanitary force main, 6 ¼" HDPE pressure sewer laterals, and the installation of a new lift station, as per the latest design plans submitted to ADEC.

Stormwater improvements require construction approval from the ADEC Stormwater Program.

Construction inspection responsibilities for this project are shared by the owner, R&M Engineering and PND Engineers, as per the subject letter dated October, 19, 2011.

Any variances for the water to sewer main crossing for all lesser separation distances must be obtained from the ADEC Water Program prior to construction. All lesser separation distance construction work must be mitigated to protect public health as per the submitted design plans and American Water Works Association (AWWA) trench and fill construction guidelines. Construction activities must subscribe to AWWA or comparable and all other pertinent federal, state, and city laws and ordinances.

This project must be constructed as per the submitted design plans, and American Water Works Association (AWWA) trench and fill construction guidelines. Construction activities must subscribe to AWWA or comparable and all other pertinent federal, state, and city laws and ordinances.

Advisories and Recommendations:

1) This construction approval is valid for two years. If the project is not constructed within two years, new plans and associated fees must be submitted to ADEC for review and approval.

2) This approval is contingent upon compliance with the conditions of Wastewater Disposal

Regulations, 18 AAC 72.235, *Construction Certification.* The noted section of the regulations requires that a "*Certification of Construction*" be completed and submitted to the Department within ninety (90) days of completion of construction. Record drawings, submitted by your engineer, must indicate any changes or deviations from the approved plans to facilitate final review. A "*Certification of Construction*" form is enclosed for your use.

3) This approval is contingent upon your receipt of any other state, federal or local authorizations which are required for your project. You are required to obtain all other necessary authorizations before proceeding with your project.

4) You are advised that if this development will require placing fill in wetlands or working in a stream, river, or lake, permits from the U.S. Army Corps of Engineers and the Alaska Department of Fish and Game may be required. A Coastal Projects Questionnaire will help you identify other permits and approvals that may be required for your project.

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. **Informal review requests** must be delivered to the Division Director, 555 Cordova Street, Anchorage, Alaska 99501, within 15 days of receipt of the plan review decision. **Adjudicatory hearing requests** must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99801, within 30 days of the decision. If a hearing is not requested within 30 days, the right to appeal is waived.

Please call me at 907-465-5167 if you have comments or questions.

Sincerely,

Joran Freeman
Environmental Engineer Associate

Attachments:
(1) *Certifications of Construction for Domestic Wastewater Systems* to be completed

CC: Steve Roberts PND Engineering, Inc., 811 First Avenue, Suite 570 Seattle, WA 98104

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CONSTRUCTION AND OPERATION CERTIFICATE
FOR
DOMESTIC WASTEWATER DISPOSAL SYSTEMS

ADEC PTN#: 8794

A. APPROVAL TO CONSTRUCT

Plans for the construction or modification of the following domestic wastewater disposal system:

Sewer mains and Lift Station

located at Etolin Street Sewer System Improvements, Wrangell, Alaska,

submitted in accordance with 18 AAC 72.210 by Robert Badgett, P.E. have been reviewed and are

☐ approved.

☑ conditionally approved (see attached conditions).

BY	TITLE	DATE
Joran Freeman	Environmental Engineer Associate	10/25/2011

If construction has not started within two years of the approval date, this certificate is void and new plans and specifications must be submitted for review and approval before construction.

B. APPROVED CHANGE ORDERS

Change (contract order number or descriptive reference)	Approved by:	Date:

C. APPROVAL TO OPERATE

The "APPROVAL TO OPERATE" section must be completed and signed by the Department before this system is made available for use.

The construction of the _____ domestic wastewater disposal system was completed

on _____ (date). The system is hereby granted **interim** approval to operate for 90 days following the completion date.

BY	TITLE	DATE
Joran Freeman	Environmental Engineer Associate	

As-built/record drawings, submitted to the Department, or an inspection by the Department, has confirmed that the domestic wastewater disposal system was constructed in substantial conformance with the approved plans. **The system is hereby granted final approval to operate.**

BY	TITLE	DATE
Joran Freeman	Environmental Engineer Associate	

Distribution:

1. Retain original for project file
2. Make copies for distribution

(Rev 4/97)

State of Alaska
Department of Environmental Conservation

Certification of Construction for Domestic Wastewater Systems

Instructions:

1. Within 90 days after the construction, installation, or modification of a project is completed, the owner, the contractor(s) responsible for constructing the project, and a registered engineer responsible for construction inspection, complete and sign this form declaring that the project was constructed in accordance with the most recent Department-approved plans, or in accordance with the attached as-built drawings.

2. If a project is being completed in phased construction, a map shall be attached showing that portion of the project being declared completed on the date stated in the Owner's section. Completion of each phase of a project must be declared completed. Additional Certification of Construction forms are available from any Department of Environmental Conservation Office.

Please type or print, except for signature

Section A-Owner's Section

Name and brief description of the project: _____

_____

Name of Owner: _____ ADEC Project No: _____
Address: _____
City State Zip

Date Project Completed: _____

I certify that I am the owner of the above-referenced project. I further certify that this project was constructed in accordance with the latest plans submitted to and approved by the Alaska Department of Environmental Conservation (ADEC), or in accordance with the attached as-built drawings. I understand that I may be required to take remedial measures to correct any construction which was completed without prior ADEC approval, which departs from the approved plans, and which is found to be inconsistent with the applicable requirements of ADEC Wastewater disposal regulations (18 AAC 72).

_____ _____

Signature of owner *(please sign in ink)* Date

Section B – Contractor's Section

I certify that I (or an individual under my direct supervision) have conducted an inspection of the project referenced in Section A, or portions of the project which I had the responsibility for constructing, and that, to the best of my knowledge and information, the project, or those portions, was or were constructed in accordance with the latest plans submitted to and approved by the Alaska Department of Environmental Conservation, or in accordance with the attached as-built drawings.

Printed Name of Contractor | Signature *(sign in ink)* | Date

For multiple contractors, if applicable

Printed Name of Contractor | Signature *(sign in ink)* | Date

Printed Name of Contractor | Signature *(sign in ink)* | Date

Printed Name of Contractor | Signature *(sign in ink)* | Date

Section C – Engineer's Section

I certify that I (or an individual under my direct supervision) have conducted an inspection of the above referenced project, and that, to the best of my knowledge and information, the project was constructed in accordance with (check one of the following):

☐ the latest plans submitted to and approved by the Alaska Department of Environmental Conservation

or

☐ in accordance with the attached as-built drawings.

Signature of Professional Engineer Responsible for Construction Inspection *(sign in ink)* | Signature | Date

Registration Number: _____

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE
SUBMITTAL REGISTER

CONTRACTOR: _____

Spec. Division	Article	Description	Date Rec'd	Reviewer	Action Code	Date FWD to Cont'r	Remarks
00360	-	List of Subcontractors and Subcontractor Sales Tax forms.					
00830	A	Certified Payrolls - State					
00830	B	List of all Subcontractors					
00830	C	Compliance Certificate and Release Form					
00830	C	Final Subcontractor List					
00840	A	List of all Subcontractors and Material Suppliers					
00840	B	EEO 1 Reports (Standard Form 100 [SF 100])					
00840	C	Certified Payrolls - Federal					
00840	C	Weekly Employment Opportunity (EEO) Reports					
00840	D	Monthly Employment Utilization Report					
00840	E	Compliance Certification and Reolease					
01010	1.9	Plan of Operation					
01010	1.9	Project Schedule					

ACTION CODES:
NR: NOT REVIEWED
AN: APPROVED AS NOTED
R: REJECTED
NET: NO EXCEPTION TAKEN
MCN: MAKE CORRECTIONS NOTED
SI: SUBMIT SPECIFIED ITEM
RR: DISAPPROVED; REVISE AND RESUBMIT

NOTE: The above list is not all inclusive. In addition to the above, the Contractor is required to comply with all submittal requirements as required or identified in the plans and/or specifications or as directed by the Engineer.

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE
SUBMITTAL REGISTER

CONTRACTOR: _____

Spec. Division	Article	Description	Date Rec'd	Reviewer	Action Code	Date FWD to Cont'r	Remarks
01010	1.9	Procurement Schedule					
01010	1.9	Shop Drawing/Sample/Substitute or "Or Equal" submittal schedule.					
01010	1.9	Project Supervisor Contact Information					
01045	1.5	Approval of Cutting and Patching					
01300	1.1	A list of all PERMITS and licenses the CONTRACTOR shall obtain.					
01300	1.1	All required Material Safety Data Sheets.					
01300	1.1	A staging and traffic maintenance plan, as required.					
01300	1.1	A plan for temporary erosion control and pollution control, as required.					
01300	1.1	A letter designating the Contractor's Superintendent & Safety Representative.					
01400	1.4	Reports Indicating Observation and Results of Tests					
01505	1.2	Breakdown which shows the estimated value of major mobilization components					
01550	1.3	Traffic Control Plan					
01550	1.4	Storage and Disposal Plan					

ACTION CODES:
NR: NOT REVIEWED
AN: APPROVED AS NOTED
R: REJECTED
NET: NO EXCEPTION TAKEN
MCN: MAKE CORRECTIONS NOTED
SI: SUBMIT SPECIFIED ITEM
RR: DISAPPROVED; REVISE AND RESUBMIT

NOTE: The above list is not all inclusive. In addition to the above, the Contractor is required to comply with all submittal requirements as required or identified in the plans and/or specifications or as directed by the Engineer.

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE
SUBMITTAL REGISTER

CONTRACTOR: _____

Spec. Division	Article	Description	Date Rec'd	Reviewer	Action Code	Date FWD to Cont'r	Remarks
01550	1.4	EPA number for wastes generated at the site					
01570	1.1	Storm water Pollution Prevention Plan					
01570	3.1	Erosion Control Plan					
01600	1.6	Manufacturers Service Instructions					
01600	1.6	Log of Services					
01700	1.3	Written Guarantees					
01700	1.3	Maintenance stock items; spare parts, and special tools.					
01700	1.3	Completed Record Drawings					
01700	1.3	Certificates of Inspection and Acceptance					
01700	1.3	Releases from all parties who are entitled to claims					
01700	1.3	Completed Certificate of Compliance and Release from all Contractors					
02202	1.2	Manufacturer's Data & Material Certificates for Geotextile Reinforcement					
02203	1.2	Pipe Bedding Material					

ACTION CODES:
NR: NOT REVIEWED
AN: APPROVED AS NOTED
R: REJECTED
NET: NO EXCEPTION TAKEN
MCN: MAKE CORRECTIONS NOTED
SI: SUBMIT SPECIFIED ITEM
RR: DISAPPROVED; REVISE AND RESUBMIT

NOTE: The above list is not all inclusive. In addition to the above, the Contractor is required to comply with all submittal requirements as required or identified in the plans and/or specifications or as directed by the Engineer.

ETOLIN STREET AND MEDICAL
CAMPUS UTILITIES ASSISTANCE
SUBMITTAL REGISTER

CONTRACTOR: _____

Spec. Division	Article	Description	Date Rec'd	Reviewer	Action Code	Date FWD to Cont'r	Remarks
02203	1.5	Insulation Board					
02204	1.2	D-1 Base Course Gradations					
02204	1.2	C-1 Base Course Gradations					
02401	1.2	Gravity Sewer Pipe and Manhole Material Certifications					
02401	1.2	Liftstation Manhole Material Certifications/Shop Drawings					
02401	1.2	Lift Station Pumps					
02401	1.2	Operation and Maintenance manual for lift station					
02401	1.2	Force main pipe, fittings, valves and valve boxes					
02401	1.2	Air vacuum valve					
02501	1.2	Storm pipes: Material Certification					
02501	1.2	Porous backfill material gradations					
02501	1.2	Catch basin material Certifications					
02601	1.2	Water Main Pipe					

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CONTRACTOR: _____

Spec. Division	Article	Description	Date Rec'd	Reviewer	Action Code	Date FWD to Cont'r	Remarks
02601	1.2	Fittings, Valves, Hydrants, Valve Boxes					
02601	1.2	Water Service Connections					
02601	1.2	Testing and Disinfection Method					
02601	1.2	Connection to Existing Main					
2601	1.2	Plastic Pipe Welder Certifications					
2601	1.2	Sample Bent Strap Test per PPI procedures					
02702	3.1	As-Built Plan Information					

ACTION CODES:
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