

**Pipe Installation Services
Request For Supplier Qualifications**

Annexes

Annex A

Company Profile Form

COMPANY PROFILE FORM

This document comprises the following Sections:

- Section I: Company Information
- Section II: Product or service details
- Section III: Company Experience; Professional and Technical Staff
- Section IV: Customer experiences

Section I

Company Information		
Vendor name	Vendor industry	
<i>[Company legal name]</i>	<i>[Primary offering (Construction category, Engineering services, etc.)]</i>	
Company description	<i>[Insert background and general company information]</i>	
Contact Information		
Primary Contact	Phone	Email

Section II

Product or Service Details	
Details and Capabilities	<i>[Detailed description of the product or service your company provides]</i>
What are your primary differentiators?	<i>[Provide an overview of three of your competitive advantages]</i>
Resources proposed to work on HDPE pipe laying and fusing	<i>[Provide background information on the resources proposed to work on a pipe laying and HDPE fusing project].</i>
Delivery timeline	<i>[Typical delivery timeline]</i>

Section III

Company Experience, Professional and Technical Staff	
Relevant Experience	<i>[Provide information about previous experiences, clients, or success stories. Minimum of 3 examples]</i>
Key Personnel	<i>[Provide an outline of proposed Project Team. Include details of the Operations Manager and of key operational personnel and their experience, certifications and/or skills]</i>

Section IV

Customer Experience					
Professional References	<p><i>Provide information requested below for at least three (3) recent clients who have obtained goods and services similar to those described in this RFSQ in the last 3 years. Attach corresponding reference letters to your submittal.</i></p>				
	<i>Project</i>	<i>Date Complete</i>	<i>Contact Name</i>	<i>Phone#</i>	<i>e-mail</i>

Annex B

Local Benefits Form

LOCAL BENEFITS

(SOCIAL, ECONOMIC AND ENVIRONMENTAL)

All pages of this form must be completed and returned with the Proponent's response.

This form is used to gather information to influence and help the economic transformation and enable meaningful participation of Bermudians and "specified business" in Bermuda's economy. This form looks at the ownership, management structures, and skill development opportunities and to learn more about the businesses bidding on Government Contracts. The Government's aim is to increase access to local economic activities and encourage skills training opportunities for Bermudians and the Government's use of specified businesses.

Rated criteria in the Government's Standard Evaluation Matrix Section 3 is equivalent to 40% of the overall score. It helps the public officers to measure, promote equal opportunities, and optimize the participation of specified businesses.

Date:

Ownership:

1. Bermudian Owned Business..... Yes No
2. Are you defined as a "Specified Business" in Bermuda (Small or Medium Sized)?
 Yes No
 Other _____

Definition - According to the Code of Practice Project Management and Procurement (page 8 and 9), "**Specified Business**" means a Bermudian-owned and owner-operated business enterprise with such characteristics as the Bermuda Economic Development Corporation may determine and

(A) gross annual sales of less than one million dollars, or an annual payroll of less than five hundred thousand dollars; or

(B) at least three of the following attributes:

- (i) gross annual revenue of between \$1,000,000 and \$5,000,000;
- (ii) net assets of less than \$2,500,000;
- (iii) an annual payroll of between \$500,000 and \$2,500,000;
- (iv) between a minimum of 11 and a maximum of 50 employees; and
- (v) been in operation for a minimum of 10 years.

Please note that BEDC has not yet requested any additional requirements of businesses to be categorized as a Specified Business. Any Bermuda owned company that satisfies the criteria on item A or item B above will be considered a Specified Business.

3. Provide a copy of the Certificate of Incorporation (if applicable).

Copy attached Yes No

4. Number of employees/Bermudians

Please indicate the total number of persons employed by the company and the number and percentage of Bermudian employees.

NUMBER OF NON-BERMUDIANS:	
NUMBER OF BERMUDIANS:	
NUMBER OF SPOUSES OF BERMUDIANS:	
NUMBER OF EMPLOYEES:	
PERCENTAGE OF BERMUDIANS:	

Skill Development - Apprenticeships/training opportunities

5. Does your business offer internship, apprenticeships or training opportunities?

Yes No

6. Does your business offer Bermudian's internships opportunities?

Yes No

7. Does your business offer Bermudian's apprenticeships/training opportunities?

Yes No

8. Is your business willing/able to provide Bermudians new internship, apprenticeship or training opportunities?

Yes No

9. If yes, to questions 6, 7 or 8, what apprenticeship or training opportunities exist, please indicate below. (add more lines as needed)

<u>EMPLOYEE NAME</u>	<u>NON BERMUDIAN</u>	<u>BERMUDIAN</u>	<u>(month/year)</u>	<u>NAME OF INTERNSHIP OR APPRENTICESHIP PROGRAM OFFERED BY YOUR COMPANY</u>

Preference Procurement

10. Will the proponent use Bermuda specified businesses in their supply chain?

Yes _____ No _____

Please provide an explanation _____

11. Will the proponent use Bermuda specified business sub-contractors (if applicable)?

Yes _____ No _____

Please provide an explanation _____

Enterprise and Supplier Development

12. Has the respondent participated in the BEDC Construction Incubator or any other Business Program

Yes No, if yes, state program _____ and year _____

13. Safety and Health, Sustainability and Environmental Policies

Please indicate whether the business has a:

a) Safety and Health Policy,

Yes No, if yes, then please provide a copy.

b) Sustainable Goods and Services Policy

Yes No, if yes, then please provide a copy.

c) Environmental Policy.

Yes No, if yes, then please provide a copy.

Annex C

Unit Price Form

PRICING FORM
 For RFSQ – Pipe Installation
 Ref:
 Company Name: _____

ANNEX C
UNIT RATE SCHEDULE
 (TO BE COMPLETED BY THE RESPONDENT)

Unit Rate Schedule

	<u>ITEM</u>	<u>UNIT</u>	<u>RATE</u>
1.0	Labour		
1.1	Principal	/hr	
1.2	Project Manager	/hr	
1.3	Supervisor	/hr	
1.4	Skilled labour	/hr	
1.5	Unskilled labour	/hr	
1.6	Welder/steel fixer	/hr	
1.7	Plumber	/hr	
1.8	Pipe fitter	/hr	
2.0	Equipment (inclusive of operator)		
2.1	Truck	/hr	
2.2	Tractor trailer w/flatbed	/hr	
2.3	Welding plant and welder	/hr	
2.4	Traffic control lighting	/day	
3.0	Activities		
3.1	6" pipe installation in trench excavated by others	/100ft	
3.2	10" pipe installation in trench excavated by others	/100ft	
3.3	12" pipe installation in trench excavated by others	/100ft	
3.4	Supply of Traffic control using stop and go labour	/hr	
3.10	Butt Fusion Welding of 6" pipe	/100ft	
3.11	Butt Fusion Welding of 10" pipe	/100ft	
3.12	Butt Fusion Welding of 12" pipe	/100ft	
3.13	Hydrostatic testing of fused pipes	/500ft	
3.14	Installation of Gate Valve	/item	
3.15	Installation of tees, bends, fittings , etc.	/item	
4.0	Items not listed above		
4.1			

All unit rates above shall be considered fully inclusive of overheads, and profit.

Annex D

Submission Checklist



GOVERNMENT OF BERMUDA

Ministry of Public Works

Department of Works and Engineering

SUBMISSION CHECKLIST

Tick if Submitted

0.1 Response Cover Letter

1.0 Mandatory Requirements

Notes

1.1 Signed Mandatory Submission Form (Appendix A)

1.2 Certificate of Confirmation of Non-Collusion Form (Appendix B)

1.3 Company Certificate of Incorporation

1.4 Certificate of Incumbancy

1.5 Company Profile Form (Annex A) and Project Team

1.6 Local Benefits Form (Annex B)

1.7 Unit Price Form - (Annex C)

1.8 Professional Reference Letters (3)

2.0 Non-Mandatory Requirements

Notes

Non-Mandatory submissions allow scoring of non-price factors; omission loses points and tender might fail for lack of sufficient quality points

2.1 Safety and Health Policy

NOTE: Please register your interest in the prequalification submittal before the submission deadline so that we can keep you informed of addendums or any other updates.

Annex E

Reference Documents Construction Specifications

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SECTION 01310 PROJECT MANAGEMENT AND COORDINATION

SECTION 01500: TEMPORARY FACILITIES AND CONTROLS

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SECTION 01700: PROJECT CLOSEOUT

SECTION 02300 - EARTHWORK

SECTION 15670 - HIGH DENSITY POLYETHYLENE (HDPE) PIPE

SECTION 01310 PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1 Submittals

- A** Schedule of Work.
- B** Method Statement for the whole of the works.
- C** Health and Safety plan including a traffic management plan for the whole of the works.
- D** Insurances.

1.2 General

- A** Provide to Employer's Representative for review the submittals specified. Submit with reasonable promptness and in an orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- B** Do not proceed with Work affected by any submittal until review is complete.
- C** Review submittals prior to submission to the Employer's Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and will be considered rejected.
- D** Verify that field measurements and affected adjacent Work are coordinated.
- E** Contractor's responsibility for errors and omission in submission is not relieved by Employer's Representative review of submittals
- F** Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Employer's Representative review.
- G** Keep one review copy of each submission on Site.

1.3 Programme Of Work

- A** Prepare schedule in the form of a linked bar chart. All events, activities and constraints shall be numbered and shall be given a title. Details to be given for each event, activity or constraint should include:
- its title
 - its earliest and latest start and finish dates
 - its scheduled start and finish dates
 - its duration
 - any relevant “must” start or finish dates
 - resources (equipment and labour) required.
- B** Provide a separate bar for each event, activity, operation or constraint. Show proposed progress of all activities for main work items. All construction activities must be identified. Where applicable, indicate labour, construction crews, plant and equipment to be employed.
- C** The project Programme of Works shall provide at least the level of detail listed below:
- Trenching works, installation of replacement water main and reinstatement of road surface along Fort Hill Road
 - Trenching works, installation of water main and reinstatement of verge and road surface along Middle Road
 - Excavation works for pull pits, installation of water main and reinstatement of road surface along Middle Road
 - Transportation of construction debris to approved site
 - Making good the site area
- D** The key milestones in the construction process shall also be identified. Schedule milestones will include but not be limited to the following:
- Start date on site.
 - Delivery dates for equipment and materials.
 - Completion of trenching on each road segment.
 - Completion of water main installation and connection to existing watermains on each road segment to minimise the time the supply is shut down
 - Reconnection of service connections along the route
 - Completion of road reinstatement on each road segment

- Final handover (final completion).

- E** Revise and resubmit programme every two weeks to reflect actual progress on the Works.
- F** With schedule updates, provide written explanations to Employer’s Representative as to why previously reviewed programme is not being met (if applicable).
- G** Show changes in operations proposed (if required), to complete construction works within Contract Time.
- H** No progress payments will be approved until receipt of programme updates acceptable to the Employer’s Representative.

1.4 Work Hours

- A** The Work shall be carried out during normal working hours (7.00 am until 6.00pm Monday to Saturday) unless the Works are unavoidable or necessary for saving life or property or for the safety of the Works, or as per any instruction from an applicable governmental authority. In such cases the Contractor shall advise the Employer’s Representative of the need to perform such extraordinary Works.
- B** The Employer will not accept claims for overtime unless the Works are as a result of an unforeseen condition.
- C** The Contractor is aware that the Works are to be carried out on public roads which may cause interruption to the Works during peak traffic times.

1.5 Method Statements

A Provide Method Statement for each key activity, as requested by Employer’s Representative, to show construction methods, equipment and general methodology for carrying out the Work. Relate Method Statement to activities shown on Construction Programme.

B Method Statement shall identify, among other things:

- Sequencing of works.
- Methods of excavation.
- Methods of water mains installation and connections to minimise the shut down of customer supplies.
- Methods to ensure appropriate environmental protection.
- Risk assessment of the hazards involved in the works.
- Other key tasks as specified in the Contract Documents, and/or as requested by the Employer’s Representative.

1.6 Certificates

A Contractor shall be required to obtain a Trenching License and other required approvals from the Ministry of Works and Engineering, Government of Bermuda.

A Within 5 working days after award of Contract, submit certificates of insurances.

1.7 Utilities

A The Contractor shall contact representatives of all utilities to ascertain the location of all underground services. All such services positions shall be clearly marked at the surface PRIOR to any trenching works commencing.

B The Contractor shall be fully responsible for any damage to services that were clearly marked at the surface, caused by the Contractor’s work and shall fully indemnify the Employer from any liability arising from any such damages.

C The Contractor shall maintain such markings at the surface at all times.

D When approaching underground services, the Contractor shall cease mechanical digging when machinery is within three (3) feet of the service location or when digging indicates that a service is present. Hand digging shall be used when crossing and exposing utilities and mechanical digging shall only be resumed once the utility service has been fully exposed and confirmed to be undamaged.

1.8 Daily Records

- A** The Contractor shall maintain accurate daily records of all works undertaken, all resources present on site, and of the progress.
- B** Records shall be submitted to the Employer at least weekly and the Contractor may inform the Employer’s Representative at any time that it is recording pertinent information.
- C** Records of any Works that have or have not been carried out that may affect the Schedule shall be used to update the Schedule.

1.9 Inspections

- A** At all times the Employer’s Representative shall be allowed to visit the Site to inspect the Works.
- B** Prior to closing in any part of the Works, the Contractor shall notify the Employer’s Representative with at least 48 hours’ notice and afford him full opportunity to examine the Works before it becomes inaccessible.
- C** Any trench works closed before the pipe work has been hydro-tested shall be at a minimum, uncovered at the joints to allow the Employer’s Representative to inspect the joints during the test. Such Works shall be to the account of the Contractor.
- D** The Employer’s Representative shall reasonably make himself available at the request of the Contractor.

1.9 Safety and Health

- A** All Works shall be conducted in accordance with the Health and Safety at Work Act 1982. The Contractor shall erect appropriate traffic warning signs and safety barriers. Safe access must be maintained to all public and private properties at all times.
- B** All workers under the employ of the Contractor, including any subcontractors shall comply with the Health and Safety at Work Act 1982 and at a minimum wear at all times:
 - 1. A hard hat
 - 2. Metal toe safety boots
 - 3. Reflective vests.Any workers not wearing appropriate safety gear may be requested by the Employer’s Representative to leave the Site, at which time they shall inform the Contractor that they have been requested to leave, and not return until they comply with the Applicable Law or regulations.

- C** All staff and subcontractors, under the employ of the Contractor, shall be supplied with written health and safety instructions which they shall read, date and sign prior to commencing work. The signed instructions shall be held by the Contractor and copies shall be provided to the Employer.
- D** When the Site includes public property such as roads or parks the Site shall be protected from public access with temporary barriers and signs which shall provide appropriate warnings, the Contractors name and a contact telephone number.
- E** In completing the Works, the Contractor shall comply with all Health and Safety requirements of Applicable Law including all licenses issued by the Bermuda Government to permit the Works including, without limitation, the trenching license obtained by the Contractor to complete the Works (the "Trenching License")

***** END OF SECTION 01310 *****

SECTION 01500: TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 Summary

- A** This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 Use Charges

- A** The Contractor will be responsible for all temporary works required and shall be required to test, repair/replace or enhance the utility services as necessary to facilitate the Works.
- B** The Contractor shall allow other entities to use temporary services and facilities without cost, including, but not limited to, Employer's Representative, testing and inspecting agencies and personnel of authorities having jurisdiction.

1.3 Temporary Utility Installation

- A** Electrical Service:

Where necessary, engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Employer, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide alternate services.

B Sanitary Facilities:

Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.

Wash Facilities: Supply cleaning compounds appropriate for each type of material handled.

Drinking-Water Facilities: Provide bottled-water, drinking-water units. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F (7.2 to 12.7 deg C).

***** END OF SECTION 01500 *****

SECTION 01561: ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 Environmental Measures

- A** Meet or exceed the requirements of all Bermuda environmental legislation and regulations, including all amendments up to project date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- B** At all times during the Works the Contractor shall maintain the Site and surrounding areas in a clean and orderly manner.

PART 2 – PRODUCTS

- A** Not Applicable.

PART 3 - EXECUTION

3.1 Fires

- A** Fires and burning of rubbish on site will not be permitted.

3.2 Disposal Of Wastes

- A** Burying of rubbish and waste materials on site will not be permitted.
- B** Collect all rubbish and waste material and dispose of in accordance with the latest editions of the Ministry of Works and Engineering, Waste Management Plan.
- C** Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- D** When cleaning with needle scabblers, provide enclosures, screens and traps to confine and contain all material and paint debris and other extraneous material.
- E** Do not allow any paint debris or other foreign material to enter the water.
- F** Hazardous waste such as lead paint debris should be double-bagged (as asbestos would be) and sent to proper waste stations. Manifest will be required by the Employer's Representative.

3.4 Drainage

- A Provide temporary drainage and pumping as necessary to keep site free from water.
- B Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- C Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with Bermuda authority requirements.

3.5 Plant Protection

- A When, in opinion of Employer’s Representative, negligence of Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond work areas as shown on contract drawings, the Contractor shall be responsible, at his expense, for complete restoration including replacement of trees, shrubs, grass, etc. to satisfaction of Employer’s Representative.

3.6 Pollution Control

- A Maintain temporary erosion and pollution control features installed under contract.
- B Control emissions from equipment and plant to Bermuda authorities’ emission requirements.
- C Prevent extraneous materials from contaminating air, land or water, by vacuum, temporary enclosures, screens, traps or other devices.
- D Spills of deleterious substances should be immediately contained and cleaned up in accordance with provincial regulatory requirements. Spills should be reported forthwith to the Employer’s Representative.
- E Noise levels emitted from construction activities are subject to Bermuda Government requirements.

3.7 Storage And Handling Of Fuels And Dangerous Fluids

- A** Locate fuel storage facility a minimum of 100 m from any waterbody in an area approved by the Employer’s Representative and construct impermeable dykes so that any spillage is contained
- B** Prevent spillage of gasoline, diesel fuel and other oil products into the water and on land. Clean up spills promptly at own cost in accordance with Bermuda regulatory requirements. Report any fuel spills immediately to Employer’s Representative
- C** Proper use of primers, grouts, bonding adhesives and other hazardous substances will be undertaken to prevent their entry into the water. Substances are to be stored and mixed on protected surfaces away from site to prevent their entry into waterways and contamination of soils.
- D** Collect and dispose of used oil filter cartridges and other products of equipment maintenance at industrial waste facility to satisfaction of Employer’s Representative.

***** END OF SECTION 01561 *****

SECTION 01700: PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 Cleaning

- A** Use cleaning materials as recommended by product manufacturers and appropriate specification sections. Employ experienced workmen or professional cleaners.
- B** Before inspection for substantial completion, do all necessary cleaning, including the following:
1. Remove dust, dirt and debris from all surfaces
 2. Remove, clean all surfaces of oils, stains, weld splatters, etc. as required.
 3. Refer to specification sections for additional requirements for particular surfaces.

1.2 Substantial Completion And Final Inspection

- A** Submit written certification that project, or designated portion of project, is substantially complete, and request, in writing, an inspection. The Employer's Representative will make an inspection within 10 days of receipt of request.
- B** Should the Employer's Representative determine that the work is substantially complete, he will prepare a punch list of deficiencies that need to be corrected before final inspection and issue a notice of substantial completion with the deficiencies noted.
- C** Should the Employer's Representative determine that the work is not substantially complete, he will immediately notify Contractor, in writing, stating reasons. After Contractor completes work, he shall re-submit certification and request for final inspection.

1.3 Close-Out Submittals

- A** The project shall be closed out when all items have been completed and accepted by the Employer's Representative.
- B** Refer to **EXECUTION** portion of each specification section for closeout requirements, including submission of certifications, test reports, etc.; provision of spare parts and maintenance materials, all of which shall be neatly wrapped or packaged in standard sizes and clearly labeled.

- C** Certificate of insurance for products and completed operations.
- D** Typed list of all major subcontractors and suppliers with addresses and telephone numbers.

1.4 Acceptance Of The Work

- A** After all deficiencies have been corrected and the work has undergone a final inspection with no deficiencies, a Taking-Over Certificate will be issued. If only designated portions of the project have been inspected and accepted, a Taking Over-Certificate will be issued for that portion of the Work.
- B** Until receipt of Taking-Over Certificate, Contractor shall be responsible for the work of this Contract.

PART 2 PRODUCTS

- A** Not Applicable

PART 3 EXECUTION

- A** Not Applicable

***** END OF SECTION 01700 *****

SECTION 15670 - HIGH DENSITY POLYETHYLENE (HDPE) PIPE

PART 1 - GENERAL

1.1 Requirements

- A** The Contractor shall furnish all tools, equipment, materials, and supplies and shall perform all labor required to complete the work as indicated on the Drawings and specified herein.
- B** This Section covers installing High Density Polyethylene (HDPE) pipelines complete, in place, in accordance with the requirements of the Contract Documents.

1.2 Related Work

- A** Not applicable

PART 2 – PRODUCTS

2.1 General

- A** All pipeline materials to be supplied by owner
- B** All pipe, fittings, and valve joints shall be joined using butt fusion or flanging. Flanged connections shall be made using a stub and backing ring arrangement, with the use of a suitable gasket material meeting the requirements of ASTM F477.
- C** High Density Polyethylene piping systems shall have design pressure limit of 150 psig at SDR = 11, unless otherwise noted.
- D** High Density Polyethylene piping systems shall have design temperature limit of 120 degree F, unless otherwise noted.

2.2 Pipe

- A** Not applicable All pipeline materials to be supplied by owner

2.3 Pipe Line Vents

A All vent valves shall be supplied by owner

2.4 Tracer Wire

A Tracing wire shall be T.W.U., number ten gauge, stranded, insulated copper wire with 60 mil of black, cross-linked polyethylene (XLPE) insulation specifically manufactured for direct burial applications.

2.5 Service Saddles

Saddles for HDPE pipe shall be full circumference wide band with stainless steel band, nuts, bolts and outlet. Band shall be type 304 Stainless steel of minimum 18 gauge thickness.

PART 3 – EXECUTION

3.1 General

A Not applicable

3.2 Handling and Storage

A Handling: Pipe, fittings and accessories shall be carefully inspected before and after installation and those found defective shall be rejected. Pipe and fittings shall be free from fins and burrs. Before being placed in position, pipe, fittings, and accessories shall be cleaned, and shall be maintained in a clean condition. Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall pipe, fittings or any other material be dropped or dumped into trenches.

B Storage: Pipe should be stored, if possible, at the job site in unit packages provided by the manufacturer. Caution should be exercised to avoid compression damage or deformation to bell ends of the pipe. Pipe should be stored in such a way as to prevent sagging or bending and protected from exposure to direct sunlight by covering with an opaque material while permitting adequate air circulation above and around the pipe. Gaskets should be stored in a cool, dark place out of the direct rays of the sun, preferably in original cartons.

3.3 Trenching and Backfill

A All trench work to be undertaken by others

3.4 Pipe Installation in Trenches

A Pipe shall be graded in straight lines, taking care to avoid the formation of any dips or low points. Pipe shall not be laid when the conditions of trench or weather are unsuitable. At the end of each day's work, open ends of pipe shall be closed temporarily with bulkheads.

B Joints shall be installed according to manufacturer's recommendations. The maximum combined deflection at any coupling shall be in accordance with the manufacturer's recommendations.

C Pipe shall be cut by means of saws, power driven abrasive wheels or pipe cutters, which will produce a square cut. No wedge-type roller cutters will be permitted. After cutting, the end of the pipe shall be beveled using a beveling tool, portable type sander or abrasive disc.

D Joints shall be butt fused or flanged in accordance with the manufacturer's instructions.

E Pipe installed by the Contractor shall at the end of the completion of Works each day be capped with a temporary protection cap to keep the pipe free of debris and vermin.

F Welding of Pipe: Each weld shall have a unique identifying number stamped into the molten weld bead:

G Each weld shall have the following logged by the welder:

1. Weld number.
2. Temperature of heater.
3. Pressure applied during the weld.
4. Time pressure was held for.
5. Date of weld.

- H** Tracer wire shall be laid flat and securely affixed to the pipe at three metre intervals. The wire shall be protected from damage during the execution of the works. No breaks or cuts in the tracer wire or tracer wire insulation shall be permitted. At water service saddles, the tracer wire shall not be allowed to be placed between the saddle and the water main. Except for approved spliced in connections, tracer wire shall be continuous and without splices from test box to test box.
- I** Warning tape shall be installed over each pipe in the backfill materials. Warning tape shall be installed no less than 12” above each pipe for the full length of the buried sections.

3.5 Connections to Existing Pipelines

- A** The Contractor shall locate all underground improvements and install the pipelines to the depths shown on the drawings. Where the new work is to be connected to existing pipelines, the Contractor shall make its arrangements with the serving utility well in advance of the connections, to allow adequate time for dewatering of the existing line, if necessary.
- B** All service connections to be undertaken upon completion of the laying of the new water main and after the commissioning and testing of the new pipeline.
- C** All Service connections to existing meters shall be laid perpendicular to the main and extended to the existing shut off valve attached to a meter or as directed by the Engineer. Each service, shall be tapped into the main at least 45 degrees above the horizontal. Taps should be at least 12” apart and staggered around the top section of the pipe. Tapping is to be made wet by the Contractor. Connection saddles are required to satisfy this requirement. Tracing wire is to extend to the body of the water meter.
- D** All services shall have a minimum of 18ins of cover. Place and compact 6ins of initial pipe bedding material in accordance with SECTION 02300 – EARTHWORK. All fittings including connection saddle materials are to be “no lead” or lead free.

3.6 Field Testing and Disinfection

- A The contractor shall include in the Schedule the points in time at which it intends to perform hydrostatic testing ("Hydrostatic Testing ") of the installed pipe.
- B The Contractor shall include in his project Method Statement a detailed description of how it intends to conduct the hydrostatic tests.
- C It is expected that it is not practical to test the pipe on completion of the installation since the pipe shall be installed under major carriageways. Instead, it is expected that the Contractor will excavate a section of trench, lay in the pipe, hydro test it, then backfill and reinstate the trench. **In the case where the pipe is to be pulled the contractor will pressure test the pipe prior to placing in inside the existing pipe.**
- D Maximum length of pipe to be tested at any time shall be no more than 750 feet.
- E At a minimum, no pipe shall be buried at the welds until hydrostatic testing has been performed and the results approved by the Employer's Representative. The pipe shall be exposed at each weld around its entire circumference for the duration of the hydrostatic test.
- F The Contractor may elect to leave the entire un-tested section exposed for the hydrostatic tests.
- G Pipes shall be pressurized to 150 psi gauge pressure, after which time the hydrostatic test pump shall be shut off and the pipe sealed. The allowable test pressure shall be verified and confirmed with the Employer's Representative prior to performing any tests.
- H The pipe shall maintain the pressure for 4 hours without the need for restarting of the pump, except for the addition of makeup water as defined in the Hydrostatic Test procedure.
- I Gauge readings shall be taken at hourly intervals during the hydrostatic test and the readings shall be logged by the Contractor.
- J The Employer's Representative shall be notified at least 48 hours in advance of the intent to perform a hydrostatic test and may elect to be present for the duration of the test.
- K All joints in the tested section shall be inspected at least twice during the test period.

- L** In the event that the tested section fails the hydrostatic test, the test pressure shall be maintained by operating the pump until the leak is found.
- M** On completion of the repair of any leaks, the pipe shall be retested, until it has passed the test.
- N** All HDPE pipes in the Scope of Works noted above shall be subjected to Hydrostatic Testing.
- O** After Hydrostatic Testing the pipe shall be drained sufficiently to resume the Works.

3.7 Pipe Line Vents and Sample Points

- A** At all high points in the pipework, the Contractor shall install a venting valve and sampling valve.
- B** All vent valves and sampling valves shall be fully accessible and at the discretion of the Employer's Representative shall require vaults suitable for full access to the pipeline.

3.8 Thrust Blocks

- A** All thrust blocks shall be installed at the direction of the Employer's Representative. No concrete supports or thrust blocks shall be buried without the Employer's Representatives approval.
- B** In all cases, thrust blocks shall be completely buried and not be visible once the Works are complete.

***** END OF SECTION 015670 *****