COEGA DEVELOPMENT CORPORATION (PTY) LTD

CONTRACT No. CDC/482/25

FOR

CONSTRUCTION OF RETURN EFFLUENT DISTRIBUTION WATER INFRASTRUCTURE TO ZONES 3, 5, 6, 7, AND 9 OF THE COEGA SEZ – PHASE 2

PROJECT DOCUMENT

BOOK 2 of 2: PROJECT INFORMATION (NON-RETURNABLE)

PREPARED FOR:

COEGA DEVELOPMENT CORPORATION (PTY) LTD
Corner Alcyon and Zibuko Street
Coega SEZ Zone 1
Gqeberha
6001

NAME OF BIDDER:_____

BOOK 2 of 2

Link to download annexures: CDC-482-25 Tender Annexures

PART C3:

SCOPE OF WORK

CONTRACT
PART C3: SCOPE OF WORKS

C3.1: DESCRIPTION OF THE WORKS

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C3.1.1 OVERVIEW OF THE WORKS

The Coega Development Corporation (CDC) was established to stimulate investment and economic growth within the Eastern Cape Province of South Africa. Located within the Nelson Mandela Bay Metropolitan Municipality (NMBM), the multi-billion-rand Special Economic Zone (SEZ) is South Africa's premier location for new industrial investment, covering 9 003 hectares of land.

Water is an invaluable resource in the water-scarce NMBM considering the current drought conditions and future water demand. Using potable water for industrial use is undesirable considering the scarcity of water and the volumes of water required for industrial use in the SEZ. CDC must provide the required water to investors to operate effectively. Due to the high water demand, the return effluent (RE) solution must be constructed to ensure that RE can be provided for industries and ensure that the potable water reserves of the CDC and NMBM are protected.

As the water demand increases, the wastewater conveyance requirements also increase proportionately. The current infrastructure must be upgraded for the increase in demand from investors in Zones 3, 5, 6, 7 and 9 of the Coega SEZ. These upgrades include the conveyancing of return effluent water to the zones. The alternative supply to the SEZ will reduce the demand for potable water for all operational works of tenants. This approach will in future generate income for the CDC through billing for the use of return effluent water.

It must be noted that an established Contractor, in terms of the prescribed category of CIDB, will be appointed.

The Contractor must familiarize themself with the above-mentioned requirements and price the document accordingly.

C3.1.2 EXTENT OF THE WORKS

The extent of the planned works entails the construction of new RE pipelines and ancillary works.

The following main elements for the Project are, inter alia:

The works have been separated into sections in the Schedules of Quantities as listed below:

- Site establishment
- Health & Safety, including traffic accommodation
- Environmental compliance and management
- Plant rescue and site clearance
- Pipe trench excavations, shoring and backfilling
- Supply and lay DN710, PVC-O pipeline for Zones 6 & 9, ±6750m
- Pipeline tie-in (Zone 6)
- Horizontal Directional Drilling under roads and rivers, including the supply of HDPE pipes
- Air valve installations and chambers
- Scour valve installations and chambers
- Isolation valve installations and chambers
- Zonal meter installations and chambers
- Barricading all earthworks and trenches
- Landscaping rehabilitation.
- Survey as-builts

The works have been separated into sections in the Schedules of Quantities as listed below:

Schedule 1: Preliminary and General

Schedule 2: Provisional Sums, Dayworks, and Temporary and Permanent Works

Schedule 3: Occupational Health & Safety and Environmental Management

Schedule 4: R102 Pipelines and Chambers

C3.1.3 LOCATION OF WORKS.

The project area is in the Coega Development Corporation (CDC) Special Economic Zone (SEZ). Specifically in Zones 3, 5, 6, and 7 as shown in the image below. The project area falls under the Nelson Mandela Bay Municipality (NMBM). See plan layout of the Phase 2 Pipelines Project below.

Figure 1: The red line is the proposed Ø710 mm PVC-O pipeline, running along the R102.

C3.1.4 TEMPORARY WORKS

The following items shall form the majority of the temporary works under the Contract for which the Contractor shall be responsible, which shall not be limited to such, but might be expanded or altered by the Engineer should circumstances on site validate such:

- Clearing the site and surroundings within the Site to create accessible working areas as depicted by the scope.
- Provide temporary barricading and provide temporary fencing around the Contractor's camp site.
- Provide site, administrative, and security staff etc. as required or instructed.
- Site establishment including all temporary facilities as specified for the Contractor's staff as well as that of the Engineer.
- Temporary services (water and electricity).
- Setting out of the work.
- Management, monitoring, and reporting as prescribed in the Contract.

- Accommodation of traffic and provision of required temporary road signs etc.
- Dealing with existing services by detecting, exposing, protecting, and re-instating.
- Provide all personnel, equipment, clothing, accessories etc. to adhere to the OHS Act.
- Provide all personnel, equipment, and accessories to adhere to the Environmental and OH&S related responsibilities.
- Attend site meetings and other scheduled meetings chaired by the Engineer.
- Shoring, dewatering, and related temporary works are required during the excavation of trenches and excavations as required to enable the permanent works to be constructed. The design of the lateral support is to be undertaken by the Contractor's Professional Engineer and included in the tendered rate. The design of the lateral support solution will be dependent on the technique used by the Contractor to perform the excavation, as well as programmed to fit into the Contractor's construction programme. The Contractor is to submit the detailed design for the approval and acceptance of the Project Geotechnical Engineer.

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C3.2: ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

The Contractor is not expected to execute any designs on this Contract, except for Temporary Works (only if instructed by the Engineer and where otherwise specified in the Contract).

DESCRIPTION	RESPONSIBLE
Obtain the necessary approvals from relevant authorities and submit documents to relevant authorities.	Employer
Concept, feasibility, and overall process.	Employer
Basic engineering and detail layout to bid stage.	Engineer
Final design to approved for construction stage.	Engineer
Temporary works.	Contractor
Preparation of as-built drawings.	Contractor and Engineer

C3.2.2 EMPLOYER'S DESIGN

The Employer procured the services of Naidu Consulting (Pty) Ltd to undertake the design and documentation on their behalf. The final design and working drawings will be issued to the successful bidder to carry out the works according to the contract document, drawings, and relevant specifications.

C3.2.3 DRAWINGS

The drawings issued to Tenderers as part of the tender documents must be regarded as provisional and preliminary for the Tender's benefit to generally assess the scope of work and to develop their pricing strategy. These drawings are marked as "Tender Drawings". The tender drawings are attached as Annexure A.

The construction of the Works shall be carried out against drawing revisions marked as "For Construction Purposes". The Contractor must ensure that they always refer to the latest construction drawing revision issued by the Engineer.

The Engineer may issue, from time to time, during the construction of the Works, revisions to previously issued drawings as may be required for adequate construction and completion of the Works. **Such revisions will be in PDF format only and it is the responsibility of the Contractor to print hardcopies.** The Contractor shall keep an updated drawing register for use on site.

All drawings, specifications, and copies thereof remain the property of the Employer, and the Contractor shall return all drawings and copies thereof to the Employer at the completion of the contract.

TENDER DRAWING No.	TENDER DRAWING DESCRIPTION
08601-00_C_RTE_T_066	RE Pipelines – R102 - Plans and Long Sections Sheets 1 to 25
08601-00_C_RTE_T_071	Project Name Board
08601-00_C_RTE_T_072	Thrust & Anchor Block Details
08601-00_C_RTE_T_073	Pipe and Valve Marker Details
08601-00_C_RTE_T_074	Typical Trench Details
08601-00_C_RTE_T_075	Access Ladder and Safety Cage
08601-00_C_RTE_T_076	DN100 Air Valve Detail
08601-00_C_RTE_T_077	DN150 Air Valve Detail
08601-00_C_RTE_T_078	DN150 Scour Valve Detail
08601-00_C_RTE_T_079	700mm Isolation Valve Chamber Detail
08601-00_C_RTE_T_080	R102/Zone 7 Isolation and Air Valve Detail
08601-00_C_RTE_T_081	100mm Meter Chamber Detail
08601-00_C_RTE_T_082	200mm Meter Chamber Detail
08601-00_C_RTE_T_083	400mm Meter Chamber Detail
08601-00_C_RTE_T_084	600mm Meter Chamber Detail
NMBM Standard Details:	
PSDB 1/2	Backfill and reinstatement of trenches and other excavations in existing roads and other paved surfaces
PSL 2/1	Installation of fire hydrant in carriageways
PSL 2/2	Installation of valve in carriageways
PSL 2/3	Pre-cast concrete chambers for hydrants and valves
PSL 2/4	Pre-cast concrete chambers for hydrants and valves
PSL 2/5	Installation of thermoplastic valve and hydrant boxes for use in road verges and non trafficable areas
PSL 2/6	Installation of lockable plastic valve and hydrant boxes for use in road verges and non trafficable areas
PSL 4/1	Valve and hydrant marker details
PSL 5/1	Trench details for water mains

The Contractor will be supplied with two unreduced prints of each of the construction drawings. These prints are issued free of charge and the Contractor shall make any additional prints they may require at their own cost.

Drawings will be provided for the obtaining of way-leaves as required by the concerned services authorities.

The levels on drawings are subject to confirmation on site and the Contractor shall submit all levels to the Engineer for confirmation before commencing with construction.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Engineer. The Engineer will supply all figured dimensions omitted from the drawings.

The drawings shall be kept in good condition on site at all times. The Engineer and/or their representative shall at all times have reasonable access to the drawings.

As-Built Drawings:

One extra drawing set will be provided to the Contractor to compile “As-Builts”.

As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the drawings as issued to the Contractor at the start of the Contract. The Contractor must submit this information to the Engineer monthly with their payment certificate. The true positions (coordinated), invert levels, and ground levels of all services shall be indicated on these drawings. The Contractor shall be responsible for making copies of these drawings as required for the monthly submission of the as-built information. The cost of these copies is considered to be included in the Contractor’s overall rates.

The monthly payment certificate will only be paid after receiving the full “as-built” information of work included in the applicable certificate. The taking-over certificate shall only be issued after the Engineer has received a properly completed set of “as-built” drawings from the Contractor. No separate payment shall be made for this service as all costs related thereto shall be deemed to be included in the related items.

Note that the drawing numbers referenced in the BoQ use ‘**T**’ in the 4th field to identify the status of the drawing as “For **T**ender”. The Drawings that are issued for construction will have “**C**” in the 4th field to replace “**T**” to identify the status if the drawing as “For **C**onstruction”.

The first field is for the WBS number. For this Project the WBS number is 08601-00.

The second field is for the discipline acronym: C is for Civil; S is for structural.

The third field is for Category acronym: For this Project RTE is for Return Effluent.

The fourth field is for Status acronym as described above.

The fifth field is for the sequential drawing number using three digits.

The sixth field is for the revision number.

The seventh field is for the drawing description.

Drawing number fields are separated by an underscore.

C3.3: PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

C3.3.1.1 Resources standards

C3.3.1 Preferential Procurement Procedures

The tenders will be evaluated in terms of the latest CDC Evaluation and Scoring of Tender Offers on Specific Goals and Price Specification document published at the time of tender.

C3.3.2 Resources Standards Pertaining to Targeted Procurement

The tenders will be evaluated in terms of the latest CDC Evaluation and Scoring of Tender Offers on Specific Goals and Price Specification document published at the time of tender.

C3.3.3 Scope of Mandatory Subcontract Work (SMMEs)

In terms of CDC's commitment to SMME development, should the Contractor be of CIDB grading of 8CE or higher will be required to employ SMMEs to carry out certain portions of the works. CDC's target for SMME involvement in each Project is 35%.

C3.3.4 Preferred Subcontractors/Suppliers (SMMEs)

As indicated in the specification referred to in C3.3.3 above.

C3.3.5 Employment of Local Labour

It is the intention that this Contract should make maximum use of the local labour force that is presently under-employed. To this end, the Contractor shall limit the utilisation on the Contract of non-local employees to that of key personnel only and to employ and train local labour to the extent necessary for the execution and completion of this Contract.

The Contractor shall fill in the form entitled Proposed Key Personnel in the Forms to be completed by the Bidder. The data stated on the above-mentioned form will be strictly monitored during the Contract period and any deviations there from shall be subject to the prior approval of the Engineer, which approval shall not be unreasonably withheld.

C3.4: CONSTRUCTION

C3.4.1 WORKS SPECIFICATION

The works are to be executed subject to these specifications, standards and workmanship requirements. Please note that compliance with all these specifications and standards, including requirements in terms of qualifications, accreditation (where applicable), and work experience of both the tendering entity and its key people will be material in the Employer's risk assessment for awarding this contract.

Where reference is made to the standard specifications in this contract, it means the latest edition of the documents which apply to the specific discipline involved in the works, as referenced under any of the headings below. The standard specifications may, due to their generality and completeness, also cover items not applicable to this particular contract.

C3.4.1.1 Project Specifications

Project specifications include amendments to the standard specifications as well as supplemental specifications applicable to work items not covered by the standard specifications. Project specifications, where applicable, may be found throughout this document, including works drawings. The pricing data and schedule may also contain references to standard specifications as well as project specifications, for clarification in terms of pricing for certain items, where applicable.

In the event of any discrepancy between the project specifications and a part of the standard specifications found in the Works Information of this document, the project specifications take precedence. Any conflict, disagreement, omission, discrepancy, or any other such ambiguity in the specifications or drawings that appear to the appointed Contractor must be brought to the attention of the Engineer for clarity.

C3.4.1.2 Accreditation, Qualifications, and Work Experience

Minimum requirements for work experience, qualifications, and accreditation (where applicable) as well as minimum personnel are as stated under the headings below. The bidder must supply the relevant information regarding accreditations, qualifications, and work experience for both the enterprise and key people who will be working on this contract on the appropriate returnable schedule in the Works Information.

C3.4.2 STANDARD SABS PROJECT SPECIFICATIONS – SABS 1200

The standard technical specifications on which this contract is based are the South African Bureau of Standards Standardized Specifications for Civil Engineering Construction SABS 1200.

Although not bound in, nor issued with this document, the following sections of the Standardised Specifications of SABS 1200 shall form part of this Contract.

Specification	Series	Year	Title
SANS 1200	A	1986	General
SANS 1200	AB	1986	Engineer's Office
SANS 1200	C	1980	Site clearance
SANS 1200	D	1988	Earthworks
SANS 1200	DB	1989	Earthworks (pipe trenches)
SANS 1200	DK	1996	Gabions and Pitching
SANS 1200	DM	1981	Earthworks (Roads, Sub grade)
SANS 1200	G	1982	Structural Concrete
SANS 1200	HA	1990	Structural Steelwork (Sundry Items) including GRP
SANS 1200	L	1983	Medium pressure pipeline
SANS 1200	LB	1983	Bedding (pipes)
SANS 1200	LC	1981	Cable Ducts
SANS 1200	LD	1982	Sewers
SANS 1200	LE	1982	Stormwater Drainage
SANS 1200	LG	1983	Pipe Jacking
SANS 1200	M	1996	Roads General
SANS 1200	ME	1981	Sub-base
SANS 1200	MF	1981	Base
SANS 1200	MH	1981	Asphalt base and surfacing
SANS 1200	MK	1983	Kerbing and channeling
SANS 1200	MM	1984	Ancillary Roadworks

The variations to and additions to the standard specifications are included under the section defining the Amended Specifications and are prefixed "PS", followed by the applicable clause reference. The clauses and payment items dealt with in this part of the project specifications are numbered such that each item referred to in the standard specification is clearly reflected. The prefix "PSA" indicates an amendment to SABS 1200A, "PSC" to SABS 1200C, etc. The numbers following these prefixes are the relevant Clause numbers in SABS 1200.

Particular Specifications are included under the section called Particular Specifications. If a Particular Specification conflicts with either the variations and additions to the standardised specifications or the SABS/SANS Standard Specifications, clarification shall be obtained from the Engineer.

C3.4.3 APPLICABLE SANS STANDARDS FOR CONSTRUCTION WORKS

The following SANS specifications are also applicable to this document unless amended in any particular specification or shown as an amended standards specification. The Contractor is advised to obtain these standard specifications from Standards South Africa (a division of SABS) in Pretoria.

Additional SANS Specifications specific to Mechanical, Electrical, Instrumentation, Health and Safety are referenced within the Project Particular Specification for these components of the works.

Specification	Year	Title	Applicable to:
SANS 62 - 1	2013	Steel Pipes Part 1 – Pipes suitable for threading and of nominal size not exceeding 150mm	PSL
SANS 62 - 2	2009	Steel Pipes Part 2 – Screwed pieces and pipe fittings of nominal size not exceeding 150mm	PSL
SANS 0100 - 2	2014	The Structural use of Concrete - Materials and execution of work	PSG
SANS 0102 - 1	2013	The selection of pipes for buried pipelines - General Provisions	PSLB
SANS 120	2009	Stemming for use in blasting	PSD
SANS 121	2011	Hot dip galvanised coatings on fabricated iron steel articles – Specification and Test Methods	PSL
SANS 135	2011	Metallic coatings – Electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium	PSL
SANS 136	2008	Metallic Coatings – Electrode-deposited coatings of nickel	PSL
SANS 509	2007	Pallet trucks - Principal Dimensions	PSG
SANS 664 - 1	2011	Wedge gate and resilient seal valves for waterworks: Part 1: General	PSL
SANS 664 - 2	2011	Wedge gate and resilient seal valves for waterworks: Part 2 Wedge gate valves	PSL
SANS 664 - 3	2011	Wedge gate and resilient seal valves for waterworks: Part 3 Resilient seal valves	PSL
SANS 665-1	2012	Wedge Gate Valves and Resilient Seal Valves for general purposes: Part 1	PSL
SANS 665-2	2011	Wedge Gate Valves and Resilient Seal Valves for general purposes: Part 2 - Wedge Gate Valves	PSL
SANS 665-3	2011	Wedge Gate Valves and Resilient Seal Valves for general purposes: Part 3 - Resilient Seal Valves	PSL
SANS 675	2009	Zinc-coated fencing wire	Gabion work, General works
SANS 676	2010	Reinforced concrete pressure pipes	PSL, PSLD, PSLE, PSLG
SANS 677	2010	Concrete non – pressure pipes	PSLE, PSLG
SANS 719	2008	Electric welded low carbon steel pipes for aqueous fluids (large bore) (200mm nominal bore to 2230mm)	PSL
SANS 815-1	2012	Shoulder-ended and groove-ended pipe systems Part 1: Shoulder-ended steel pipes, fittings and couplings	PSL

Specification	Year	Title	Applicable to:
SANS 815-2	2011	Shoulder-ended and groove-ended pipe systems Part 2: Groove-ended steel pipes, fittings and couplings	PSL
SANS 830	2009	Performance standards in building - Principles for their preparation and factors to be considered	PSG
SANS 863	2011	Continuous totalizing automatic weighing instruments - Belt weighers	PSG
SANS 878	2012	Ready-mixed concrete	PSG
SANS 929	2008	Plywood and composite board	PSLE
SANS 966-1	2014	Components of pressure pipe systems Part 1: Unplasticized poly (vinyl chloride) (PVC-U) pressure pipe systems	PSLC, PSLE
SANS 966-2	2013	Components of pressure pipe systems Part 2: Unplasticized poly (vinyl chloride) (PVC-M) pressure pipe systems	PSL
SANS 974-1		Rubber gaskets	PSLE
SANS 1083	2006	Aggregates from natural resources – Aggregates for concrete	PSG, PSMF
SANS 1085		Concrete testing	PSG
SANS 1117	2007	Plastic wrappings for the protection of steel pipelines	PSL
SANS 1123	2017	Pipe Flanges	PSL
SANS 1215	2008	Concrete masonry units	PSLE
SANS 1217	2015	Internal and external organic coating protection of buried steel pipelines	PSL
SANS 1294	2012	Precast concrete manhole sections and components	PS, PSL, PSG, PSLC, PSLD, PSLE
SANS 1491 - 1 Super	2005	Portland cement extenders - Ground granulated blast furnace slag (GGBS)	PSG
SANS 1491 - 2 Super	2005	Portland cement extenders - Pulverised Fly Ash (PFA)	PSG
SANS 1491 - 3 Super		Portland cement extenders- Condensed Silica Fume (CSF)	PSG
SANS 1529		Mechanical Water meters - potable water	PSL
SANS 1551 - 1	2008	Check valves (flanged and wafer types): Part 1: PN Series	PSL
SANS 1580	2005	Hexagonal steel wire mesh gabions and revet mattresses	PSDK
SANS 1671-1	2007	Welding of Thermoplastics - Machines and equipment - Heated tool welding	PSL
SANS 1700-1 - 1	2010	Fasteners Part 1: Terminology and nomenclature Section 1: Bolts, screws, nuts and accessories	PSL, PSH, PSHA
SANS 1700-2 - 1	2003	Fasteners Part 2: Screw threads Section 1: ISO general purposes screw threads - Basic profile - Metric screw threads	PSL, PSH, PSHA
SANS 1700-4 - 1	2003	Fasteners Part 4: Tolerances Section 1: Tolerances for fasteners - Bolts, screws, studs and nuts - Product grades A, B and C	PSL, PSH, PSHA
SANS 1700-5 - 1	2011	Fasteners: Part 5: General requirements and mechanical properties: Section 1: Mechanical properties of fasteners made of carbon steel and alloy steel - Bolts, screws and studs	PSL, PSH, PSHA
SANS 1808 - 1	2017	Water supply and distribution system components - Metallic compression type pipe couplings	PSL

Specification	Year	Title	Applicable to:
SANS 1808-13	2009	Water supply and distribution system components: Part 13: Diaphragm valves	PSL
SANS 1808-15	2011	Water supply and distribution system components: Part 15: Mechanical backflow-prevention devices	PSL
SANS 1808-31	2010	Water supply and distribution system components: Part 31: Automatic control valves	PSL
SANS 1849	2008	Butterfly valves for general purposes	PSL
SANS 1921 – 1	2018	Construction and Management Requirements for Works Contracts Part 1: General Engineering and Construction Works and where accommodation of traffic is involved	C3.4.4
SANS 1921 - 2	2018	Construction and Management Requirements for Works Contracts Part 2: Accommodation of Traffic on Public Roads Occupied by the Contractor	C3.4.4
SANS 1921 - 3	2018	Construction and Management Requirements for Works Contracts Part 3: Structural Steelwork	C3.4.4
SANS 1921 - 4	2018	Construction and Management Requirements for Works Contracts Part 4: Third-party management support in works contracts	C3.4.4
SANS 1921 - 5	2004	Construction and Management Requirements for Works Contracts Part 3: Earthworks activities which are to be performed by hand	C3.4.4
SANS 1921 - 6	2004	Construction and Management Requirements for Works Contracts Part 6: HIV/AIDS Awareness	C3.4.4
SANS 3001		General Civil Engineering test methods	
SANS 3001-C03 - 2	2015	Civil Engineering test methods - Part C03-2: Concrete durability index testing - Oxygen permeability test	PSG
SANS 3001-C03 - 3	2015	Civil Engineering test methods - Part C03-3: Concrete durability index testing - Chloride conductivity test	PSG
SANS 3001-GR55	2012	Civil Engineering test methods - Part GR55: Determination of the wet-dry durability of compacted and cured specimens of cementitious stabilised materials by hand brushing	PSG
SANS 6085		Testing of Concrete	PSG
SANS 4074	2003	Natural latex rubber condoms – Requirements and test methods	SANS 1921
SANS 4427 - 1	2008	Plastic piping systems - Polyethylene (PE) pipes and fittings for water supply - Pipes	PSL
SANS 4427 - 2	2008	Plastic piping systems - Polyethylene (PE) pipes and fittings for water supply - Pipes	PSL
SANS 4427 - 3	2008	Plastic piping systems - Polyethylene (PE) pipes and fittings for water supply - Fittings	PSL
SANS 5772	2004	Preparation of steel substrates before the application of paints and related products – surface roughness characteristics of blast-cleaned steel surfaces – Profile of blast-cleaned surfaces determined by a micrometre profile gauge	PSL, PSH, PSHA, Corrosion Protection
SANS 5836	2007	Effect of fine and coarse aggregate on the shrinkage and expansion of cement: aggregate mixes (mortar prism method)	PSG

Specification	Year	Title	Applicable to:
SANS 6085	2006	Concrete tests - Initial drying shrinkage and wetting expansion of concrete	PSG
SANS 8779	2010	Plastic pipe systems - Polyethylene (PE) pipes for irrigation - Specifications	PSL
SANS 10064	2011	The preparation of steel surfaces for coating	Corrosion Protection
SANS 10104	1991	Handrailing and balustrading (safety aspects)	PSHA
SANS 10129	2006	Plastic tape wrapping of steel pipelines	PSL
SANS 10164-1	1980	The structural use of masonry Part 1: Unreinforced masonry walling	General work
SANS 10268	2009	Welding of thermoplastics - Welding processes - Heated tool welding	PSL
SANS 10270	2015	Welding of thermoplastics - Approval of welding procedures and welds	PSL
SANS 10329	2012	The design and construction of sectional steel tanks for storage of liquids at or above ground level	PSHA
SANS 10313	2012	Protection against lighting - Physical damage to structures and life hazard	LPE
SANS 10396	2003	Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures	PSL
SANS 16422	2016	Pipes and joints made of orientated plasticized poly(vinyl chloride) (PVC-O) for the conveyance of water under pressure - Specifications	PSL
SANS 50196 - 1	1994	Methods of testing cement Part 1: Determination of strength	PSG
SANS 50196 - 2		Methods of testing cement Part 2: Chemical Analysis of cement	PSG
SANS 50196 - 3	1994	Methods of testing cement Part 3: Determination of setting times and soundness	PSG
SANS 50196 - 4	1993	Methods of testing cement Part 4: Quantitative Determination of constituents	PSG
SANS 50196 - 5	1994	Methods of testing cement Part 5: Pozolanicity for pozzolanic cement	PSG
SANS 50196 - 6	1989	Methods of testing cement Part 6: Determination of fineness	PSG
SANS 50196 - 7		Methods of testing cement Part 7: Methods of taking and preparing samples of cement	PSG
SANS 50413 - 1	1994	Masonry cement: Composition, specifications and conformity criteria	PSG
SANS 50413 - 2	1994	Masonry cement: Part 2: Test methods	PSG
SANS 50197 - 1	2013	Cement Part1: Composition, specifications and conformity criteria for common cement	PSG
SANS 50934 - 2	2001	Admixtures for concrete, mortar and grout: Part 2: Concrete admixtures, Definitions, requirements, conformity, marking and labelling	PSG
SANS 50934 - 6	2011	Admixtures for concrete, mortar and grout Part 6: Sampling, conformity control and evaluation of conformity	PSG

Specification	Year	Title	Applicable to:
SANS 53263 - 1	2011	Silica fume for concrete Part1: Definitions, requirements and conformity criteria	PSG
SANS 53263 - 2	2011	Silica fume for concrete Part 2: Conformity evaluation	PSG

These Specifications are not issued with this volume but are available at the Contractor's expense from Standards South Africa.

Office Address:	**Postal Address:**	**Telephone:**
1 Dr Lategan Road Groenkloof PRETORIA	Private Bag X191 PRETORIA 0001	National: 086 127 7227 **Email:** sales@SANS.co.za

The Project Specifications referred to above can be found in Annexure B.

The Project Specifications form an integral part of the Contract documents and supplement the Standard Specifications.

The hierarchy of documentation applicable to this Contract is as follows:

1. Letter of Offer of Acceptance
2. Appendix to Tender within the Contract Data (what Contractor Specified in his tender during the tender phase)
3. Particular Conditions of Contract
4. General Conditional of Contract
5. Scope of Works
6. Project Drawings
7. Project Specifications (Specials)
8. Standard Specifications
9. Standard Drawings
10. Schedule and any other documents forming part of the Contract (SoQs)

C3.4.4 SANS1921

The SANS 1921 - Volumes 1, 2 and 6 - Construction and Management requirements for works standards and associated specification data are applicable.

Volume 1 – General Engineering and construction works

Volume 2 – Accommodation of traffic on public roads occupied by the Contractor (note that this Contractor is required to apply the applicable clauses in this specification to the informal road reserves and accesses as described elsewhere in this specification.)

Volume 6 – HIV/AIDS awareness

The following amended specification data for SANS 1921 applies to this Contract:

The SANS 1921 specification is amended under section C5 – Amendments to Standard Specifications.

The variations to and additions to the standard specifications are included under the section called Amended Standard Specifications in table format. Such amendments take precedence over the SANS Standard Specification.

Particular Specifications are included under the section called Particular Specifications. Where a Particular Specification conflicts with either the variations and additions to the standardised specifications or the SABS/ SANS Standard Specifications, clarification shall be obtained from the Engineer.

C3.4.5 APPLICABLE INTERNATIONAL SPECIFICATIONS

The following international specifications are referred to in this document and/or are relevant to the Contract and the Contractor is to obtain copies from the relevant authorities as required for the execution of the Works.

Additional International Specifications specific to Mechanical, Electrical, Instrumentation, Health and Safety are referenced within the Project Particular Specification for these components of the works.

Specification	Year	Title	Applicable to:
ANSI/API 5L: Latest edition		Specification for Line Pipe.	PSL
API 1104: Latest edition		Welding of Pipelines and Related Facilities.	PSL
ASTM A234/A234M-11a		Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High-Temperature Service	PSL
ASTM C232-99		Standard Specification for Chromium-Vanadium Alloy Steel Valve Spring Quality Wire	PSG
BS 10	2009	Flange drilling patterns	PSL
BS 1387		Non-alloy steel tubes suitable for welding and threading	PSHA
BS 1881:124	2015	Testing concrete: Methods for analysis of hardened concrete	PSG
BS 2571	1990	Specification for general-purpose flexible PVC compounds for moulding and extrusion	PSL
BS 5135	1984	Specification for Arc welding of carbon and carbon manganese steels	PSG
BS 5155 Super	1984	Specification for butterfly valves	PSL
BS 534	1990	Steel pipes, joints and specials for water and sewage	PSL

Specification	Year	Title	Applicable to:
BS 537		Specification for low carbon 17/12 chromium-nickel-molybdenum corrosion-resisting steel sheet and strip (500Mpa)	PSL
BS 4504		Flange drilling patterns	PSL
BS EN 593	2017	Industrial valves. Metallic butterfly valves for general purposes	PSL
BS EN 1092	2018	Flanges and their Joints – Circular flanges for pipes, valves, fittings and accessories, PN-designated steel flanges	PSL
BS EN 10224	2002	Non-alloy steel tubes and fittings for the conveyance of water and other aqueous liquids	PSL
BS EN 10240	1998	Internal and or external protective coatings for steel tubes. Specification for hot dipped galvanized coatings applied in automatic plants	PSL, Corrosion Protection
BS EN 10311	2005	Joints for the connection of steel tubes and fittings for the conveyance of water and other aqueous liquids	PSL
EN 197-1	1992	Cement Part 1 - Composition, specifications and conformity criteria for common cement	PSG
ISO 1133-1	2011	Plastics - Determination of the melt mass flow rate (MFR) and melt volume flow rate (MVR) of thermoplastics - Part1: Standard method	PSL
ISO 1456	2009	Metallic and other inorganic coatings - Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and copper plus nickel plus chromium	PSL, PSH, PSHA
ISO 1458	2002	Metallic coatings: Electrodeposited	PSL, PSH, PSHA
ISO 1461	2009	Hot dipped galvanised coatings on fabricated iron and steel articles - Specifications and test methods	PSL, PSH, PSHA
ISO 4427-1	2019	Plastic piping systems for water supply and for drainage and sewage under pressure - Polyethylene (PE) - Part 1: General	PSL
ISO 4427-2	2019	Plastic piping systems for water supply and for drainage and sewage under pressure - Polyethylene (PE) - Part 2: Pipes	PSL
ISO 4427-3	2007	Plastic piping systems - Polyethylene (PE) pipes and fittings for water - Part 3	PSL
ISO 8501-1	2007	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings	PSL, PSH, PSHA
ISO 8503-1	2012	Preparation of steel substrates before application of paints and related products - Surface preparation methods - Part1: General principles	PSL, PSH, PSHA
ISO 8504-1	2019	Preparation of steel substrates before application of paints and related products - Surface roughness characteristics of blast-cleaned steel substrates - Part1: Specification and definitions for ISO surface profile comparators for the assessment of abrasive blast-cleaned surfaces	PSL, PSH, PSHA
ISO 3575	2016	Continuous hot-dip zinc-coated carbon steel of commercial, lock-forming and drawing grades	PSH, PSHA
ISO 12176-1	2107	Plastics pipes and fittings - Equipment for fusion jointing polyethylene systems - Part 1: Butt fusion	PSL

Specification	Year	Title	Applicable to:
ISO 14713-1	2017	Zinc coatings - guidelines and recommendations for the protection against corrosion of iron and steel in structures - Part1: General principles of design and corrosion resistance	PSH, PSHA

The variations to and additions to the standard specifications are included under the section named Amended Specifications and in some cases in the Particular Specifications. Such amendments take precedence over the Standard Specification as noted above.

Particular Specifications are included under the section named Particular Specifications. Where a Particular Specification conflicts with either the variations and additions to the standardised specifications or the Standardised Specifications listed, clarification shall be obtained from the Engineer.

C3.4.6 HEALTH AND SAFETY SPECIFICATION

Refer to Annexure D: Employers Project Specific Health and Safety Specification for Construction.

C3.4.7 PLANT AND MATERIALS

C3.4.7.1 Plant and materials supplied by the Employer

None.

The Contractor is to enquire with CDC and NMBM with regards to the acquisition of granular bedding material from a local quarry.

C3.4.7.2 Materials, samples, and shop drawings

The Contractor shall, when so ordered, deliver to an approved testing laboratory, samples of materials to be used in the Works. No laboratory for use by the Engineer will be required. However, the Contractor shall provide and maintain their own equipment to do all tests required to enable them to fulfil their obligations in terms of the specifications in this regard.

Should the Contractor wish to utilise any materials other than those specified on the working drawings or specified in the standard specifications, project specifications or schedule of quantities, the Contractor will be required to submit to the Engineer in writing requesting the use of the alternative material. This written request must be accompanied by sufficient information (test results, comparative tests, certificates etc.) to enable the Engineer to make an informed decision.

Shop drawings shall be submitted to the Engineer and client for approval 28 days prior to the commencement of the final ordering of equipment and/or the manufacturing of the works.

C3.4.8 CONSTRUCTION EQUIPMENT

The Contractor must ensure that plant and equipment as tendered in the Schedule of the Returnable Documents are in good working order and are utilised for their intended purposes and that the plant and equipment are insured against all eventualities. The Contractor shall not undertake or conduct any major repairs, modifications, or overhauls

of the plant at the site. All equipment must comply with the requirements as stipulated in the Environmental regulations and specifications and contained in the OHS Act.

C3.4.9 EXISTING SERVICES

C3.4.9.1 LOCATION AND PROTECTION

SANS 1921-1 Clause 4.17 has relevance and is added to herewith.

All enquiries on the latest situation with services are to be undertaken by the Contractor. The location of the services shown on the drawing by the Employer was effective at the time of design and based on existing as-built information if available and may have changed. The time required to confirm the latest situation with services has to be allowed for by the Contractor in their programme for construction.

Attention is drawn to the fact that whilst the position of the existing pipelines in servitudes, as well as other services in the vicinity of servitudes, and all other services are indicated on the drawings have been provided as accurately as possible, this information may not be completely accurate and it will be necessary for the Contractor to communicate with the service providers and to prove, trace, and expose services which the Contractor has been made aware of as a result of their interaction with service providers. The Contractor shall coordinate meetings with all relevant service providers before construction commences and take all the necessary steps to ascertain the location of existing services before commencing work on any section of the Works. The rates tendered for the location of services and proving of same as well as the updating of existing records of services, shall be deemed to include for these meetings.

The Contractor shall establish at the meetings with service providers, the lead times required to update records, and shall accommodate this activity in their Construction Programme.

The Contractor shall take all the necessary steps to ascertain the location of existing services before commencing any section of the Works and shall exercise the greatest care when working in the vicinity of such services. Before commencing their operations in any particular area, the Contractor shall request the latest available drawings from the relevant local Service Authorities, showing the location of their services already installed. The Contractor shall ensure that adequate time is allowed for making contact with the relevant Service Authorities for them to respond meaningfully. The Contractor shall compare the latest service locations obtained from the Service Authorities with the drawings provided for construction and where required, such construction drawings shall be updated. The Engineer shall be notified of any changes in service locations found on the construction drawings.

The Contractor shall procure the required equipment which will enable him to prove services.

The Contractor shall locate existing pipes, optic fibre cables, electric cables, and/or any other services by hand excavation without the use of picks, to minimise the risk of damaging existing services. The Contractor shall be held responsible for any damage caused to existing services.

It is a requirement of this contract that the Contractor exposes and proves every known service within the site ahead of any work being performed, to determine whether its level or location clashes with the Works. All services are to be proven in conjunction with each

service provider prior to excavation. Such proving shall be timed to coincide with the requirements of the programme and the limitations on the length of work fronts as specified.

The cost of this work is to be included in the tendered rates for excavation and all tendered rates shall be deemed to include the exposing of known services and the proving of its location. No additional payment will be considered for the exposing and proving of services as payment for this shall be deemed to be included in existing payment items as specified in the Bill of Quantities for all types of excavation. The item for excavation by hand to expose unknown and known services where instructed by the Engineer is for use by the Engineer only on an as-and-when-required basis.
The Contractor shall be required to prove every service, indicating X, Y, and Z coordinates. Claims for delays etc. arising from non-compliance with this requirement will not be entertained.

In addition to the marking/pinpointing of known services, the Contractor is to screen the area of the proposed excavations using appropriate electronic tracing apparatus for other buried services, such as pipes or cables that may not be shown in services records. All services found in this manner shall be classified as known services and shall be proved as set out above.

Service connections to individual erven are to be located and handled in a manner acceptable to the Engineer. Located and proved services are deemed to be known services.

Should any services which are not on the drawings be located, the Contractor shall add the new information to the drawings for the Employer to update their information. All tendered rates for trench excavations and road works shall include the locating of services and the updating of drawings for the Employer.

The top surface of all existing thrust blocks is to be proven and sufficiently protected before any excavation near these thrust blocks takes place. Such thrust blocks shall be defined as a “service”.

Work is to take place alongside existing water pipelines, electricity cables, and fibre optic cables, these must remain in service at all times during the construction of this Project. The consequences of rupturing these pipelines or cables are severe and apart from the financial implications, possible loss of life to those working nearby and/or extensive property damage is a real threat. The Contractor’s attention is therefore drawn to the necessity to exercise due caution during construction, particularly during excavation.

Where work is to be undertaken beneath power lines, the Engineer shall be informed at least 21 working days in advance of such construction being carried out, so that the necessary arrangements can be verified with the authorities. The Contractor shall ensure that they are, at all times, familiar with the conditions of their wayleave approvals and shall adhere to the restrictions for working in servitude areas at all times.

The Contractor will be held responsible for any damage to known existing services caused by or arising out of their operations and any damage shall be made good at their own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur. The Contractor is responsible for the relocation of services.

C3.4.9.2 REINSTATEMENT OF SERVICES AND STRUCTURE DAMAGED DURING CONSTRUCTION

The Contractor shall take adequate measures approved by the Engineer to protect and prevent damage to existing works and services. The Contractor shall immediately notify the Works manager as well as the Engineer, of any damage caused to existing works and services.

Where the Contractor is responsible for damage for which repairs have to be carried out by an outside authority, the costs of these repairs will be recovered by a deduction from the Contractor's Payment Certificate. The Employer will attend to the payment due to outside authorities.

The cost of repairing any damage to services, due to miscalculations or negligence on the part of the Contractor or their failure to carry out the duties set out in this Clause, shall be borne by the Contractor.

C3.4.9.3 Driveways, Access, and Road Crossings

Horizontal Directional Drilling (HDD) is to be used to cross any surfaced areas that are used for vehicular or pedestrian traffic, including driveways, access, and roads. No open trenching will be permitted for these crossings. Refer to the HDD specification in the Annexures.

C3.4.9.4 River Crossing

Microtunnelling is to be used to cross the Coega River. No open trenching is permitted for this river crossing. Refer to the Microtunnelling and Environmental specifications in the Annexures.

C3.4.10 RELOCATION OF EXISTING SERVICES

It is the responsibility of the Contractor to negotiate the relocation of services with the relevant service providers.

The Contractor shall ensure that they commence with such negotiations well in advance to be able to plan and programme such work into the programme for the construction of the Works without causing a delay to the construction of the Works.

The Contractor will be responsible for the payment of initial deposits and relocation costs and will only be reimbursed for such costs from the relevant item in the Bill of Quantities on a re-measurable basis, once proof of relevant payments have been received by the Employer.

The Contractor is to further note that no excavation machinery may excavate within 300 mm vertically or horizontally of existing water pipelines unless otherwise agreed by the Engineer, the balance of the excavation being carried out is to be done by hand or by other means approved by the Engineer.

C3.4.11 SITE ESTABLISHMENT

C3.4.11.1 Location

No pre-determined site camp has been earmarked for this Project and it will be up to the Contractor to make the necessary arrangements for a suitable campsite. The Contractor is however required to obtain approval of his choice of campsite from the Employer.

C3.4.11.2 Storage and Laboratory Facilities

Once the Contractor has chosen a site, they will be required to make all necessary arrangements for water, telephone, and power connections with the relevant service owners in the area.

The Contractor shall provide sheds for storage of materials and offices for their own use as required. The Contractor may establish their own laboratory on site or may employ the services of an independent commercial laboratory. Whatever method is used, the Contractor must submit the results of tests carried out on materials and workmanship when submitting work for acceptance by the Engineer. The costs for these tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required.

C3.4.11.3 Services and Facilities provided by the Employer

The Employer will supply no services and/or facilities. The Contractor will supply all necessary facilities as set out in the Project Specifications.

C3.4.11.4 Vehicles and Equipment

None.

C3.4.11.5 Advertising Rights

No advertising will be permitted without the express written consent of the Employer.

C3.4.11.6 Notice Boards

No notice boards will be permitted without prior consultation with the Employer.

C3.4.12 FACILITIES PROVIDED BY THE CONTRACTOR

C3.4.12.1 Facilities required by the Engineer

a) Engineer's Office

To be provided as stipulated in the schedule of quantities. The Engineer's Representative will be allowed free use of the Contractor's facilities under this Contract, as well as free use of survey equipment and survey assistants to carry out

control work as and when required.

b) Photographic Record of Work

It is desired to obtain a photographic record of the successive stages of construction.

Photos shall be captured continuously throughout the Project and submitted to the Engineer at the end of each week. Photos will be delivered on a suitably sized portable USB drive. Photos will be in jpeg format of at least 48MP quality at 9:16 ratio. At least 25 photos should be captured each day.

C3.4.12.2 Facilities required by the Contractor

a) Contractor's Office and Sheds

The Contractor shall provide at the Works, temporary offices for their own use, the use of their representatives, and all necessary shelter for workmen and sheds for the storage of tools, plant, and materials. Sheds for the storage of cement must be waterproofed with a raised floor of wood or concrete etc. In addition, sheds for storing rubber and weatherproofed plastic material are to be light-proof.

The Contractor shall maintain the site in a clean, orderly and sanitary condition and shall take all the necessary steps and precautions to prevent the pollution of the surrounding area by anyone in any way. These steps and precautions shall be to the satisfaction of the Engineer and CDC.

b) Contractor's Telephone

The Contractor will be required to obtain a cellular telephone for their own use on the site.

c) Latrines

The Contractor shall provide, maintain, move to positions required, and finally remove, proper latrines in compliance with the relevant Municipal Sanitation General By-laws, as well as CDC's requirements. Latrines must be properly screened and secluded from public view and their use shall be strictly enforced. The Contractor shall provide chemical toilets (or other approved toilets). Soak-aways and septic tanks will not be allowed on the site. Temporary latrines must be sited so that they are within reasonable distance of the working place.

d) Sufficient latrines must be provided having regard to the number of persons employed on the Works. All latrines shall be adequately ventilated, properly disinfected, and kept in a clean condition.

e) Contract Name Board

At the time of erecting the sheds and offices, the Contractor shall erect on or adjacent to the Site, in a conspicuous place to be agreed upon by the Engineer, a Contract name board as detailed in clause 3.1, Part AB of SANS 1200. The total cost for the procurement and erection thereof will be deemed to be included in the schedule of quantities. Ensure drawing has space for the CWP number to be displayed.

f) Transport

The contractor shall provide transportation for local labour in a 30km radius from the project area for the full construction period. This transportation must be an enclosed roadworthy licensed vehicle to ensure safety and comfort for the passengers. Open or non-enclosed transport options are not acceptable. The Contractor will be responsible

for arranging a qualified driver, covering all associated costs including fuel, insurance, and any other necessary operating expenses. Additionally, the Contractor must ensure the vehicle has access to safe and secure parking when not in use.

C3.4.13 SITE USAGE

Access to the site shall be limited to the Contractor and their personnel only. The main Contractor shall be responsible for controlling unauthorized entry to the site and shall inform the Engineer of any breach of such rules. The site shall be managed and used for its intended purpose.

C3.4.13.1 Site Usage: Additional Requirements for Construction Activities

a) The Contractor shall be responsible for the construction of any deviation for the accommodation of traffic. In all cases shall the existing number of traffic lanes and possible movements of traffic be retained.

b) The Contractor's tendered rates for the relevant items in the schedule of quantities shall include full compensation for all possible additional costs which may arise from this and no claims for extra payment following on inconvenience caused by or as a result of the modus operandi to be followed will be considered.

c) The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

d) Failure to maintain road signs, warning signs, flicker lights, etc. in good condition shall constitute ample reason for the Engineer to stop the works until the road signs, etc. have been repaired to their satisfaction.

e) The Contractor may not commence constructional activities before adequate provision has been made for accommodating traffic according to the requirements of this document and the South African Road Traffic Signs Manual.

f) The Contractor shall submit proposals in connection with directional signs to the Engineer for approval by an approved traffic plan.

g) The Contractor may not construct any deviations without the prior written approval from the Engineer.

h) The Contractor shall be responsible for repairing any damage caused to infrastructure and vegetation in the areas of construction. Failure to repair any damage will give the Employer (CDC) the right to withhold payments due to the Contractor until repairs have been made to the satisfaction of the Engineer and Employer. Any expenses incurred in this regard will be for the Contractor's own account and the Employer will not be liable for any payment in this regard.

i) The Contractor shall make provision for the coordination of work with other contractors that may be operating in the project area that is outside the scope of this Project.

C3.4.14 PERMITS AND WAY LEAVES

The Contractor shall be responsible for obtaining all the wayleaves, permissions, or permits applicable to working near any existing services or other infrastructure on Site and shall abide by the safety conditions imposed by such wayleaves, permissions, or permits.

The Contractor shall liaise with CDC and shall ensure that all required Wayleaves have been obtained before the commencement of works. The Contractor will at all times be required to be in contact with the relevant service providers.

The Contractor shall ensure that all wayleaves, permissions, and permits are kept on site and are available for inspection by the relevant service authorities on demand. The contractor shall also ensure that any wayleaves in respect of electricity services are renewed timeously every three months.

The Contractor shall be responsible for applying to the CDC for an excavation permit. The Contractor must make provision for this as no excavation may commence before receiving this permit. The Contractor must apply for this permit immediately at the start of the Project.

C3.4.15 CONSTRUCTION IN RESTRICTED AREAS

It may be necessary for the Contractor to work within confined areas. Apart from the case of the exceptions described in this sub-clause, no additional payment will be made for work done in restricted areas. In certain places, the width of the excavations adjacent to existing road pavement layers may be reduced to as little as zero and the working space may be confined.

The method of construction in these confined areas will depend largely on the Contractor's constructional plant. However, the Contractor shall note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used to achieve these cross-sections and dimensions that the bid rates and amounts shall be deemed to include full compensation for any special equipment and construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at/or around obstructions, and that no extra payment will be made nor will any claim for additional payment be considered in such cases.

C3.4.16 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATION TO EXISTING WORKS

The Contractor must satisfy themself that the dimensions, accuracy, alignment, levels, and setting out of the site, existing road, structures, or components thereof are compatible with the proposed Works and must notify the Engineer where this is not the case.

C3.4.17 INSPECTION OF ADJOINING PROPERTIES

The Contractor together with the Engineer must inspect all adjacent structures for defects, cracks etc. before commencing with the works that may have a potential to damage surrounding buildings and properties. Notes and photographs must be taken of each

structure surrounding the development, to record any existing defects prior to the commencement of the works.

C3.4.18 WATER FOR CONSTRUCTION PURPOSES, POWER SUPPLY AND OTHER SERVICES

The Contractor shall make all their own arrangements concerning the supply of construction water, electrical power, and all other services. No direct payment will be made for the provision of such services. The cost thereof shall be deemed to be included in the rates and amounts bid for the various items of work for which these services are required.

C3.4.19 SURVEY CONTROL AND SETTING OUT OF THE WORKS

The Contractor must check all survey control beacons if indicated on the drawings before commencing with the works and must notify the Engineer of any discrepancy.

C3.4.20 CHANGE IN SCOPE OF THE WORKS

The Employer reserves the right to amend the quantities and scope of works (increase or decrease quantities) prior to or during the Contract and the Contractor shall forfeit all claims linked to loss of profits or consequential losses against the Employer in this regard.

C3.4.21 SURVEY REQUIREMENTS

The Contractor may only backfill pipe trenches on instruction by the Employer's Representative. The Contractor shall not backfill until after the as-built point data for the pipe invert level and position is captured and approved by the Engineer.

The Contractor shall be responsible for capturing a 5m wide tache strip survey of the surface along the pipeline routes after commissioning.

The above information is to be surveyed by a suitably qualified and professionally registered person. It is imperative that the surveyor utilises the nearest survey control point and notifies the Engineer thereof. The survey shall be done in WGS84 Lo25 projection.

Survey of pipelines, bends, specials, fittings, and chambers shall be captured to an accuracy of less than 10mm by a Professionally Registered Surveyor.

The Contractor will be required to prove the accuracy of the GPS device they intend on using prior to any as-built data being captured. The Employer's Representative may request further accuracy tests and verified calibration certificates during the Contract should they deem it necessary.

Suitable checks on the accuracy of the information provided may be carried out by the Employer's Representative and should any of the information provided be found to be

inaccurate or untrue, the Employer's Representative reserves the right on behalf of the Employer to withhold payment or to employ the services of an engineering surveyor to re-survey all the works, at the Contractor's expense. In this case a minimum of three quotations is required from three independent engineering surveyors of the Employer's choice and the cost thereof will be deducted from money owed to the Contractor.

For other infrastructure, the Contractor shall ensure that all existing and constructed infrastructure under the Contract is shown on the as built survey.

- A tacky survey of the completed works carried out in accordance with TMH11: Standard Survey Methods, issued by the Committee of Land Transport Officials.
- Each point shall be suitably coded and identifiable by the Engineer and shall be supplied electronically in an ASCII file with the following format: Code [SPACE] X Co-ordinate [SPACE] Y Co-ordinate [SPACE] Z Co-ordinate [SPACE] Description.
- The above information is to be given to an accuracy of three decimal places and is to be surveyed by a suitably qualified person referenced to the nearest construction benchmarks used for the Project.
- In addition to the above, all as-built information must be provided on a drawing in DWG format showing all relevant construction information. All other surveyed information must also be shown on the drawings.
- Information requirements need to be confirmed with the Employer's Agent.
- LandXML format of the digital terrain model must be provided.
- Minimum As-Built Data to be captured:

Item	Description	Coordinates and Levels for the following
Pipelines	Positions and levels of buried and above-ground pipes, valves, specials, fittings installed and connection points on HDD and Microtunnelling portions.	• Centre of crown of pipes, bends, tees, reducing tees, and reducers • All flanges/couplings • Stem of buried isolation valves • Pipelines to be surveyed every 6m and/or every change in direction (bend start and end points) • Crown of all pipe jacks/ horizontal directional drilling sleeves on each side of the road • HDD drilling profile • Microtunnelling profile
Chambers	Position of all chambers	• All external roof/cover corners/ four opposite points around a circular chamber • Surrounding ground level at corners • Internal floor level • Location of pipe entry and exit from chamber from centre of crown of pipe

C3.4.22 MAINTENANCE REQUIREMENTS

The Contractor shall make themselves available for immediate repairs and maintenance work on the Project for the duration of the defects notification period.

C3.4.23 GPR REQUIREMENTS

After site clearance and before trench excavation, the Contractor shall undertake a ground penetrating radar (GPR) survey to identify existing services along the pipe route. This GPR survey must be superimposed on the Construction drawings to validate existing services shown on the construction drawings. The GPR survey should indicate changes in road structure, existing services installed beneath the road surface, pavement layer depths, and any other features.

The GPR survey is required to provide services and obstructions found beneath the existing ground profile, provide a geo-referenced photolog of located services, radargram report and route of GPR. The services and obstructions are to be captured in an AutoCAD drawing and Excel spreadsheet indicating type of service, XY location and depth (Z) to top service. The final, complete returnable files are to be submitted via email, Google Drive, or Dropbox.

C3.4.24 ANCILLARY COLOUR REQUIREMENTS

To prevent confusion with potable water, the colour of the anicllary works for the return effluent pipeline are to comply with the purple colour that is recognised for reclaimed water. This is to prevent the unintentional contamination of drinking water with return effluent, or the accidental consumption of reclaimed water which is not classified as suitable for drinking. This includes the colour of covers, lids, and pipe and kerb markers. The colour should be Orchid Purple from the RAL Design colour range - RAL 330 50 40.

C3.4.25 PREFERRED COATING

The following is a guide for NMBM preferred external coatings:

- Proguard CN 200 ceramic polymer
- Duplex (hot dip galvanized and epoxy coating) with Carboguard 880 epoxy
- Glassflake system (Corrocoat) epoxy based
- Sigmaguard 880 epoxy with Sigmaguard 550 topcoat (UV stable epoxy)
- Plascoat PPA 57 thermoplastic powder coat
- Belzona 1341 epoxy

C3.4.26 VALVES

All valves to NMBM standards. All valves to be anticlockwise closing, class 16 or as specified, Cast Iron Resilient Seal Valves with non-rising spindle, to SABS 966 or as specified. For air valves, the valve features a rising spindle, as shown in the drawings.

C3.5: MANAGEMENT

C3.5.1.1 MANAGEMENT OF THE WORKS

The Contractor shall attend all management meetings at the Engineer's request. Site meetings will be held every week as per the dates agreed. This will include contract management and technical meetings.

The Health & Safety meetings will form part of the Contract Management meetings.

The Contractor will be required to present all relevant and requested information including early warnings, quality plans, schedules, (including progress) subcontractor management, and health, environmental, and safety issues at such meetings.

All meetings are to be recorded using minutes and a register prepared and circulated by the person who convened the meeting. Such minutes or registers are not to be used to confirm actions or instructions under the contract. These are to be done separately by the person identified in the Conditions of Contract to carry out such actions or instructions.

C3.5.1.2 PROGRAM OF THE WORKS

The programme, progress reports, subsequent updates, revisions, and supplementary programmes as detailed in this section are an essential part of the project control system used by the Engineer for managing the Works on behalf of the Employer and in monitoring the progress of the work under the Contract. The information and data provided by the Contractor for this procedure must therefore be reliable, accurate, and timely in presentation.

The Program shall reflect the full scope of work, contractual start and completion dates, and critical path, and shall make allowances for inspections and subsequent rectifications of work. The program shall be submitted in both hard and soft copy forms using the Microsoft Projects software package, or other similar programming application software, once accepted by the Engineer.

To demonstrate the actual progress of the work under the Contract the Contractor shall update and submit the following to the Engineer weekly (or other agreed schedule):

a) The revised program, in the form of a three-week look-ahead, showing two (2) separate bars for each activity as per i) and ii) below to enable a comparison of the actual progress with the first program,

(i) The first programme activity bar, and
(ii) The revised activity bar identifying the currently forecast start and finish dates of the activity, and the status (% complete of each activity)

b) The progress ‘S curves’ based on the latest Accepted Programme,

c) Deviations between the “current” activity schedule from the “baseline” activity schedule together with the ‘S curves’ will form the basis for assessing progress and performance.

C3.5.1.3 MONTHLY STATUS REPORT

The Contractor shall provide a written status report one week prior to each Contract Management meeting or such other reporting period as may be required by the Engineer from time-to-time. The report shall summarise progress and problems encountered during that month in respect of all parts of the work under the Contract.

As a minimum, the report shall include:

- progress against the accepted programme
- summary of progress achieved during the period using progress 'S curves'
- list of milestones achieved during the period
- critical path activities
- status of design, procurement, and off-site works
- status of on-site works
- deviations from the accepted programme and in particular, the forecast completion dates of activities which have or should have commenced
- status of approvals
- actual or anticipated problems with the corresponding action plans to minimise the impact
- summary of works planned for the following period
- cash-flow status versus the original forecast
- A labour resource schedule which must distinguish between the Contractor's permanent labour and the temporary local labour employment
- time for training of local labour
- other information specifically required by the Engineer

The Contractor's programme shall be a level 4 detailed schedule.

When drawing up this programme, the Contractor shall, inter alia, take into consideration and make allowance for:

- expected weather conditions and their effects
- known physical conditions or artificial obstructions
- the reasonable requirements of any sub-Contractors (steel supplier or other)
- the accommodation and safeguarding of public access and traffic
- working in association with approved Contractors involved in other associated Contracts
- health, safety and environmental requirements
- all other actions that are required in terms of this document.

If any change to the critical path becomes necessary, the Contractor shall notify the Engineer in writing forthwith.

The Contractor's programme shows the duration of operations in working days and shall be realistic and based on quantities and applied resources.

The programme shall allow for special non-working days and the number of days stipulated in the project specifications for inclement weather.

The Contractor shall update the construction programme weekly, taking cognizance of all factors affecting the programme. Due allowance shall be made by the Contractor in the tender sum for the cost of updating the programme.

If the programme is to be revised because the Contractor has fallen behind the programme, they shall produce a revised programme showing the modifications to the original programme necessary to ensure completion of the Works of any part thereof within the time for completion. Any proposal to increase the tempo of the work must be accompanied by positive steps to increase production by providing more labour and plant on the site, or by using the available labour and plant more efficiently.

Failure on the part of the Contractor to work according to the programme or revised programme shall be sufficient reason for the Employer to take steps as provided for in the Contract.

The Engineer's approval of any programme shall have no Contractual significance other than that the Engineer would be satisfied if the Work were carried out according to such programme and that the Contractor undertakes to carry out the Work according to the programme, nor shall it limit the right of the Engineer to instruct the Contractor to vary the programme, should circumstances necessitate it.

The above shall not be taken as limiting the right of the Contractor to claim for damages or extension of time which he may be fairly entitled to in terms of FIDIC for delay or disruption of their activities.

Should the Contractor at the request of the Employer undertake to finish the whole part of the Works ahead of the time originally required by the Contract, payment for accelerating with the terms of such agreement will be applicable.

The Contractor's monthly programme submission will include a narrative report including:

- Status report - narrative which includes status and performance of operations on the site and Working Areas; summary of progress achieved during the reporting period; status and performance of operations outside the Working Areas; critical action items (top 10) and deviations from the Accepted Programme and action plan to rectify.
- Progress statistics - progress as a percentage of overall works and show progress for "this period" and "progress to date". To calculate this percentage the Contractor uses a spreadsheet to calculate the earned progress of activities which have been weighted using man-hours.
- Project milestone table - reflecting previously and currently forecasted versus accepted milestones.
- Level 4 Project Programme - showing the current forecast dates base-lined against the latest Accepted Programme and showing both a Total Float and Variance column.
- Monthly look-ahead Schedule - showing the current forecast dates base-lined against the latest Accepted Programme and showing both a Total Float and Variance column.
- Manpower Histogram - reflecting actual, forecasted and planned activities.
- Project Labour Report
- S-curves - reflecting the actual percentage complete versus the planned percentage

for the overall Contract utilising the earned values as calculated by the detailed progress report.

C3.5.2 PERSONNEL

C3.5.2.1 KEY PERSONNEL

The Contractor shall provide an organogram showing their key personnel and their lines of authority and communication. The CVs of key personnel, to participate in the Project, showing their qualifications and experience shall be made available at tender stage by the Contractor to the Employer for adjudication purposes.

Should any personnel change from the tender submission, their CV must be submitted and approved by the Engineer and it shall be a like-for-like candidate or better.

In addition to the general key personnel requirements as per the contract document, the Contractor is to ensure a Concrete Foreman is employed on this contract full time to meet the following minimum criteria:

- A minimum of five (5) years experience in concrete works; and
- Successful completion of at least three (3) concrete projects involving concrete chambers, reservoirs, or reinforced concrete structures of similar scale and complexity; and
- Demonstrated experience coordinating with pipeline teams where concrete chambers interface with pressurised water pipelines.

The costs for the Concrete Foreman are deemed inclusive in the tendered rates.

The Contractor keeps a site representative competent to administer and control the works continuously in the working areas during the execution of the works. The Contractor shall inform the Engineer of the name of the site representative, and any instruction given to the site representative by the Engineer is deemed to be given to the Contractor.

C3.5.2.2 USE OF LOCAL RESOURCES

An objective of this Project is the optimum use of local resources as required by the Department of Labour's Special Public Works Programme (Government Notice No R63 of 25 January 2002).

C3.5.2.3 TRAINING

Technical skills training (accredited) shall be provided by the Contractor to all local labour involved in the Contract to enhance their development, and to assist in the empowerment of the local communities.

C3.5.2.4 RESTRICTIONS ON THE USE OF PERSONNEL IN THE PERMANENT EMPLOYMENT OF THE CONTRACTOR

a) The Contractor shall limit the use of their permanently employed personnel to that of

key personnel only – a full list is to be provided with the Site Handover Meeting.

b) The Engineer may at their discretion, upon receipt of a written and fully motivated application from the Contractor and where they deem the circumstances to warrant, authorize in writing that the Contractor may use in the execution of the Works, workers not being their key personnel but who are in their permanent employ. Without limiting the generality of application of this sub-clause, circumstances which may be considered by the Engineer to warrant the authorization of the use of the Contractor's permanent employees not being key personnel, include:

(i) The unavailability of sufficient numbers of temporary workers and/or Sub-Contractors to execute the Works, provided always that the Contractor has proven that they have exercised their best endeavours and taken all reasonable actions to recruit sufficient numbers of temporary workers and Sub-Contractors and has exhausted all reasonable recruitment options.

(ii) The unavailability within the temporary worker pool and/or Sub-Contractor sources available to the Contractor in terms of the Contract, of the required sufficient knowledge and skills necessary for the execution of the Works or specific portions thereof, in cases where the time for completion allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of training as contemplated in this Contract

(iii) Any other circumstances which the Engineer may deem as constituting a warrant.

C3.5.3 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

A delay caused by inclement weather conditions will be regarded as a delay (including consequential delay) only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the working programme of the Contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected delay of "n" working days caused by normal rainy weather, for which they will not receive any extension of time, where “n” equals 20 working days.

Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" working days.

C3.5.4 SITE MEETINGS

Monthly co-ordination and progress meetings shall be held or may be amended if the Engineer deems if necessary if progress or construction issues necessitate this. The

monthly co-ordination meetings are solely intended for reporting, programming, and forward planning.

Technical meetings between the site staff and project managers will be held if deemed necessary. At these meetings, the relevant Consultant Engineer, responsible for the aspect of work to be discussed at that meeting, will attend. The Contractor shall request clarification of work items at least two weeks in advance to avoid delays occurring.

Minutes of all meetings shall be recorded, and all instructions recorded and noted in the Site Instruction Book. Failure to do so may result in the rejection of a claim.

C3.5.5 INSTRUCTIONS

A site instruction book, in triplicate, shall be provided by the Contractor and shall be kept, in good condition, on site at all times.

C3.5.6 ACCOMMODATION OF TRAFFIC

The Works are to be carried out in areas with pedestrian and vehicular traffic. The barricading, lighting, and traffic control on Site shall be carried out in strict compliance with these Specifications. Furthermore, the Contractor shall ensure that pedestrians have free access past the Works without having to walk on trafficked roadways and shall make every effort necessary to ensure that construction activities cause as little inconvenience and danger to the public as possible.

The Contractor shall provide a safe and unrestricted flow for residents, vehicles, and pedestrians at all times during the construction period. Wayleaves and necessary notifications shall be the responsibility of the Contractor.

C3.5.7 FEATURES REQUIRING SPECIAL ATTENTION

C3.5.7.1 Protection of Public and Property

The Contractor shall fence or otherwise protect all parts of the works dangerous to the safety of the public or property. All excavations are to be barricaded as per relevant SANS Standard specifications.

The Contractor shall light and barricade if necessary, all materials of a description obstructing sidewalks, pavement and street, as a consequence of his operations.

All costs associated with complying with the above shall be included in the rates as no special item has been included in the Schedule of Quantities.

C3.5.7.2 Spoil Materials

No indiscriminate spoiling of material will be allowed. All surplus and unsuitable material shall be spoiled at a site located and paid for by the Contractor, which shall be approved by the Engineer.

C3.5.7.3 Operation of Valves

It may be necessary to isolate a portion of the water reticulation to execute the Works. The Contractor shall not operate any valve. Requests for closing of water pipelines shall be made to the relevant Networks Area Manager at least 7 working days in advance. The Contractor shall arrange for valve closures by Local Authorised personnel.

C3.5.7.4 Site Safety and Disruption of Traffic

Where the Works are to be carried out in areas with pedestrian and vehicular traffic. The watching, barricading, lighting, and traffic control on Site shall be carried out in strict compliance with these Specifications. Furthermore, the Contractor shall ensure that pedestrians have free access past the Works without having to walk on trafficked roadways and shall make every effort necessary to ensure that his construction activities cause as little inconvenience and danger to the public as possible.

The Contractor shall ensure that access for vehicles and pedestrians is given at all times.

The Contractor shall liaise with CDC and shall ensure that all required way leaves have been obtained before works commence.

In particular, excavations must at all times be made safe such that they will not become a safety risk for the public. Excavations must not be left open overnight without sufficient barricading, lighting, and watching to ensure adequate safety. Excavations must be kept free of water.

C3.5.8 PAYMENT CERTIFICATES

The Contractor and the Engineer must agree on the measured quantities before submission of the certificate. All measurement and payment certificates must be submitted to the Engineer on a date to be agreed upon at the site handover meeting. The Contractor must ensure that all interim payment certificates are accompanied by a Tax Invoice, with the Contractor’s and the Employer’s VAT Registration numbers printed thereon, to ensure timeous payment of the certificate.

C3.5.9 SECURITY

The Contractor is responsible for all security measures required on site for the construction of the Works.

All costs required for security measures taken on site shall be deemed to be covered in the billed rates of the Bill of Quantities.

The Contractor shall provide security watchmen for the Contract as they deem fit at no extra cost to the Employer. The Contractor must ensure that all their employees as well as the employees of their sub-contractors can identify themselves as members of the construction team.

C3.5.10 ENVIRONMENTAL MANAGEMENT

The Contractor will be required to adhere to the conditions, standards, and requirements stated in the Environmental Specifications in Annexure E.

The content of the EMP covers:

- Potential environmental impacts addressed by the EMP
- Management action required to mitigate impacts
- Mitigation standards
- Monitoring methods & frequencies

The Contractor shall submit method statements as required in the EMP and by CDC, for approval, prior to commencing any construction activities on site. The costs of these shall be included in the overall rates.

C3.5.11 HEALTH AND SAFETY

The work under this Contract is defined as “Construction Work” and regulated under the Occupational Health and Safety Act, 1993 (latest amendment) and the Contractor shall adhere to all the legislative requirements as per Construction Regulations 2014, as well as the Employers Project Specific H&S Specification, developed by the Safety Agent, attached as Annexure D.

The Contractor shall provide for the cost of the health and safety measures in the Schedule of Quantities according to the Specification for Occupational Health and Safety.

The Contractor shall notify the Provincial Director in writing of the construction activities before work commences if required.

The Site Representative shall be present on site during working hours and any orders or instructions, which the Engineer may give to the Site Representative, shall be deemed to have been given to the Contractor.

The Contractor shall develop and demonstrate to CDC a suitable and sufficiently documented Health and Safety plan in terms of Regulation 5(1) and based on the Health and Safety Specification provided by CDC.

C3.5.12 TESTING REQUIREMENTS

The Contractor will be responsible for both control as well as acceptance testing during the Contract, both tests are to be conducted by a SANAS-accredited laboratory. No extra payment will be made for these tests as they are deemed to be covered by the tendered rates for the applicable work. No payment will be certified unless the tests are received on the registered laboratory letterhead and subsequently signed by the responsible (qualified) person.

Test requirements and frequencies are to be agreed upon by the Engineer and Contractor. Payment will only be certified when work and test results comply with the specification set out by the relevant Contract documentation (SANS etc.) as deemed compliant by the Engineer.

Refer to NMBM Infrastructure and Engineering Directorate – Water Distribution Division, Design and Construction Guidelines, 4. Water Pressure Testing.

C3.5.13 CONSTRUCTION LABOUR MANAGEMENT SPECIFICATION FOR DEVELOPING SKILLS THROUGH INFRASTRUCTURE CONTRACTS

Deliverable T1: Provide Training and Development interventions to achieve full compliance with the Construction Industry Development Board (CIBD) Contract Skills Development Goal (CSDG).

The Contractor shall achieve the CSDG *(per Government Gazette No.48491 of 31 March 2023 and any subsequent legislative amendment)* by providing opportunities to trainees, learners, interns and candidate professionals requiring structured workplace learning and experiential opportunities, for the Contractor to fully comply with the requirements of the CIDB Contract Skills Development Goal.

The main Contractor shall determine and provide for the cost of full compliance to the CSDG, expressed in Rand, which shall not be less than the full contract amount multiplied by the applicable percentage (%) factor given in Table 1 in the Standard for Developing Skills, for the applicable class of construction works.

The main Contractor shall submit to Coega Human Capital Solutions (HCS) via the Engineer, within 20 days of the contract coming into effect, and/or the issuing of an instruction from the Principal Agent, a contract-compliant **baseline human resources development plan** to ensure full compliance to CSDG as referred to herein above. The baseline human resources development plan must also include all subcontractors' (all SMMEs inclusive) obligations to ensure that the total CSDG is achieved. The baseline human resources development plan must receive the Principal Agent's written approval prior to its implementation.

The main Contractor shall also submit to Coega Human Capital Solutions (Coega HCS) via the Principal Agent, monthly CSDG training compliance reports, as well as the final CSDG training compliance report within ten (10) days of taking-over certification. Such training reports shall be in the format required by Coega HCS and include all CSDG deliverables by all subcontractors.

The preference of selection and placement of appropriate trainees/ learners/ candidates shall be local individuals, in line with identified local Target Areas. The initial search shall be limited to the Project Job Seekers' Database (which includes training/ development opportunity seekers) managed by Coega HCS. Only upon written confirmation from Coega HCS of the non-availability of candidates per instance, shall Contractors be obligated to recruit required trainees/ learners/ interns/ candidates professionals through their own conventional means for subsequent prior placement approval by Coega HCS.

The main Contractor shall ensure the achievement of the measurable CSDG by providing opportunities to trainees, learners, and candidates requiring structured workplace learning using one or a combination of any of the following CSDG Methods for work directly related to the contract or order.

Employed learners may not account for more than 33 per cent of the CSDG, and not more than one method may be applied to any individual concurrently in the calculations of the CSDG.

Deliverable T 1.1: The main Contractor shall ensure the provision of structured workplace learning opportunities that result in the attainment for learners towards the attainment of a part or a full occupational qualification. (CSDG Method 1)

Deliverable T 1.2: The main Contractor shall ensure the provision of structured workplace learning opportunities for apprentices and/or other artisan learners towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012) subject to at least 60% of the artisan learners being holders of public TVET college qualifications. (CSDG Method 2)

Deliverable T 1.3: The main Contractor shall ensure the provision of work-integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas. (CSDG Method 3)

Deliverable T 1.4: The main Contractor shall ensure the provision of structured workplace learning opportunities for built environment profession candidates towards professional registration by a listed statutory council. (CSDG Method 4)

TABLE 1: **CSDG goals for different classes of engineering and construction works contracts:**

Class of construction works as identified in terms of Regulation 25(3) of the Construction Industry Regulations 2004		**Construction Skills Development Goal (CSDG) (%)**
Designation	**Description**	
CE	Civil Engineering	0.25
CE and GB	Civil Engineering OR General Building	0.375
EE	Electrical Engineering Works (Buildings)	0.25
EP	Electrical Engineering works (Infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering Works	0.25
SB	Specialist	0.25

PART C4:

SITE INFORMATION

CONTRACT
PART C4: SITE INFORMATION

C4.1 DESCRIPTION OF THE SITE

Location of the Works

Refer to **C3.1.3** in this document**.**

C4.2 GEOTECHNICAL, Topography, and Vegetation:

Refer to **Annexure E: Environmental Specifications.**

Refer to **Annexure F: Geotechnical Investigation Reports.**

C4.3 Existing Services:

Refer to **Annexure A: Tender Drawings.**

LIST OF ANNEXURES
PART C5: ANNEXURES

C5.1	Annexure A	Tender Drawings
C5.2	Annexure B	Project Specifications
C5.3	Annexure C	Baseline Risk Assessment
C5.4	Annexure D	Project Health and Safety Specifications
C5.5	Annexure E	Project Environmental Specifications
C5.6	Annexure F	Geotechnical Investigation Reports
C5.7	Annexure G	CIDB Standard for developing skills through infrastructure contracts
C5.8	Annexure H	Labour Management
C5.9	Annexure I	SMME Specification
C5.10	Annexure J	CDC Planning Specifications for Contractors
C5.11	Annexure K	Supplier Performance Evaluation

Link to download annexures: CDC-482-25 Tender Annexures