# TENDER 16-20

# WATER TREATMENT BUILDING

## ADDENDUM NO. 8

**October 20th, 2016**

**This addendum forms part of the Tender Documents** and shall be read, interpreted, and coordinated with all other parts. The costs of all elements contained herein shall be included in the submission. The following revisions, changes, corrections, additions, and or deletions supersede the information contained in the original Documents to the extent referenced and shall become part thereof.

**Addendum Item 1**
**Questions & Answers**

278. **Proponent Question:**

The excavation for the base of the sanitary storage tank will be at elevation 136.0 which is 3 meters below the lake level. We anticipate an extensive dewatering / well point system to facilitate the installation. Due to the close proximity to the existing caisson it is highly likely that a portion or one side of the caisson will be exposed during excavation for the sanitary tank. Can you comment if this will compromise or put the caisson at risk?

**Response:**

There is not a concern that the caisson may have a catastrophic collapse as a result of excavation adjacent to it as described. However, it cannot be guaranteed that the caisson will not experience some movement in this situation, which is unacceptable. If contractor intends to proceed with this construction methodology, it will be their responsibility to ensure no damage to or movement of the caisson occurs during construction.

279. **Proponent Question:**

Reference drawings C102, C104 & C301: Could you please provide structural details on the concrete boat ramp?

**Response:**

Concrete boat ramp to be removed from this scope of work. Contractor to provide gravel base for boat ramp.

280. **Proponent Question:**

Regarding Section 08 11 13:

Doors 001D and 002 are scheduled to receive "welded hinges' but specified to receive template butt hinges; the Frame and Doors are specified to be mortised, blanked, reinforced, drilled and tapped for templated hardware in 2.8.2;

- Please advise hinge type so as to provide preparations

**Response:**

Oversized doors
Use continuous hinges Stanley 651HD x height of door, finish 32D

All other doors

| Door | No. Hinges | model/size | finish |
|---|---|---|---|
| Typ. Steel door u.n.o. | See 087100, 3.5.4 | CB168 (127mm x 114mm) | 652 |
| D101A (wood door) | " " | CB168 (127mm x 114mm) | 652 |
| D103A,D103B | " " | CB179 (114mm x 114mm) | 652 |

281. **Proponent Question:**

Regarding Section 08 71 00

a. 3.6.TAG HB Hinges Butt indicates six hinges ("3 pairs") per door leaf. There are hinge pitching and sizing standards based upon height, width and weight of door leaf.
   - Please indicate hinge weighting, sizing and pitching quantities as per application.

b. 3.6.TAG FB Flushbolt is specified for double [pairs] of doors to [pin] the inactive door. These bolts are also scheduled for the oversize pairs of doors
   - Please advise pinning product(s) for oversize doors

c. Welded hinges are scheduled for oversized pairs of doors, however
   - No hinge type is specified
   - No direction is given as to welding type and application as based on material
   - Welding contradicts the specifications, as to mortising and templating, of Sections 08 11 13 and 08 71 00. Please advise

**Response:**

a.

| Door | No. Hinges | model/size | finish |
|---|---|---|---|
| Typ. Steel door u.n.o. | See 087100, 3.5.4 | CB168 (127mm x 114mm) | 652 |
| D101A (wood door) | " " | CB168 (127mm x 114mm) | 652 |
| D103A,D103B | " " | CB179 (114mm x 114mm) | 652 |

b. For the oversized doors, please use:
   Manufacturer: Canaropa
   Product: surface mounted chain bolt (top of door) / surface mounted foot bolt (bottom of door)
   Model: 66 and 68 respectively
   Finish: stainless steel
   Please note that although noted in the door schedule, no astragals are to be provided.

c. Oversized doors - Use continuous hinges Stanley 651HD x height of door, finish 32D

282. **Proponent Question:**

Section 260534 2.1.4 indicates " no EMT allowed for this installation " what wiring method are expecting to see for the lighting in the ceiling and rooms 004, 005, 101, 102 & 105?

**Response:**

RPVC acceptable in this potentially humid and slightly caustic environment.

283. **Proponent Question:**

If we cannot use EMT what is the wiring method we should use for section 250921 BMS systems?

**Response:**

RPVC acceptable in this potentially humid and slightly caustic environment.

284. **Proponent Question:**

There is no specification for Security Systems, does it require GSM? is it to be monitored? Shouldn't spec 253101 data sheet for door contact be in this section? Can the security subcontractor use a standard door contact?

**Response:**

Monitoring anticipated to be done over hard line (Telus). Security subcontractor can use standard door contacts (confirm hazardous area ratings).

285. **Proponent Question:**

There is no specification for data/telephone cabling system, are the RJ11 jacks terminated on bix back in the LAN room? 48 port patch panel in LAN for RJ45 ? 25 year warranty required?

**Response:**

BIX block terminations are requested, mounted on a permanent structure (wall). Warranty per contract documents.

286. **Proponent Question:**

Can we use a different paralleling configuration of copper teck cables running between SWG-6A and MCC-6A as long as the minimum circuit ampacity is achieved?

**Response:**

Alternate cable paralleling configurations will be considered as long as teck90XLPE, copper, and equally sized cables are used.

287. **Proponent Question:**

If P5-P8 is just a sleeve for the teck cable can we use DBII vs RPVC?

**Response:**

Yes

288. **Proponent Question:**

Drawing E301; FCV-522 is shown in a solid circle indicating we are to provide under this contract. Please clarify

**Response:**

Refer to actuator schedule; please provide a future conduit sleeve in conduit for FCV-522. Otherwise, cable and supply not required.

289. **Proponent Question:**

Please confirm that the division 25 only provides FCV-604 c/w VFD under this contract. FCV-820 & FCV-830 are not supplied by the electrical contractor, please clarify.

**Response:**

An FCV does not come with a VFD (question is not clear). VFD 820 and 830 are part of the contract, and are identified as being vendor supplied with the air compressor system (reference drawing P010)

290. **Proponent Question:**

Is division 26 responsible for unbolting, moving and re-bolting in place the two UV reactors from the existing WTP or is this Div 40 responsibility, please clarify.

**Response:**

Work describe is part of the contract. The Prime Contractor is to define the work scope of supply to the subcontractors.

291. **Proponent Question:**

Section 250501 2.7.2 does not include FCV-502 & FCV-512. Are they being relocated and who is responsible for moving them Div 40?

**Response:**

FCV 501 and 511 are being relocated from Elk Falls Water Quality Centre. Prime contract to define the work scope to the subcontractors

292. **Proponent Question:**

Require clarification to question 93.c .Is the site boundary Brewster Lake road or C102? Is Div 26 or Div 33 extending both telus and BC Hydro ducts to site boundary?

**Response:**

Site boundary for the purposes of this question is defined by C102. No comment on what Division should be responsible for this; not in the remit of the engineer or City

293. **Proponent Question:**

Section 253101 2.16 Equipment List; does not indicate the 3 flowmeters at JHWQC are supplied under division 25 and no tags are provided. I assume Division 25 has to set-up and commission. Are they supplied by Div 33 or Div 25?

**Response:**

Work describe is part of the contract. The Prime Contractor is to define the work scope of supply to the subcontractors.

294. **Proponent Question:**

In reference to Appendix 1 on the tender form does the electrical shown on drawings C101, C103, C201, C202, C203 & C304 get carried under Div 33 or Div 25 & Div 26?

**Response:**

Work describe is part of the contract. The Prime Contractor is to define the work scope of supply to the subcontractors.

295. **Proponent Question:**

In reference to Appendix 1 are all conduits and ducts shown on E101 carried under Div 26 or Div 33?

**Response:**

Work describe is part of the contract. The Prime Contractor is to define the work scope of supply to the subcontractors.

296. **Proponent Question:**

In reference to drawing P009 does Div 25 or Div 40 carry the non electrical pressure gauges and switches in Appendix 1?

**Response:**

Work describe is part of the contract. The Prime Contractor is to define the work scope of supply to the subcontractors.

297. **Proponent Question:**

Can we get a short closing extension to properly deal with Addendum 7?

**Response:**

No.

298. **Proponent Question:**

I had a few other questions regarding the MCC in this, all referencing elec. drawing no **15-508-E301:**

a. As per the electrical drawing, it seems that most of the vertical sections are only 15"W (main breaker section 20"W). Just wanted to confirm this is accurate, as the standard MCC vertical section width is 20"W minimum.
b. Is it allowable to increase the overall width of the MCC lineup, provided it still fits on the wall between PNL-A/TX-A, and the south corner of the room, (upper right corner in the drawings) or would you prefer to keep that corner open?
c. Would it be allowable to decrease the spacing between the various lighting panels and transformers, to allow for a wider MCC lineup?
d. Would it be allowable to pull any of the FVNR starters out of the MCC lineup and have them as wall-mount units?

**Response:**

a. Representation intent is 508mm per MCC section in electrical room.
b. Intent is to allow equipment access per CEC. If alternate layouts achieve this goal, they will be considered.
c. Intent is to allow equipment access per CEC. If alternate layouts achieve this goal, they will be considered.
d. Intent is for all starters be installed in the MCC and not separate from the MCC lineup (unless otherwise shown).

299. **Proponent Question:**

What is the exact FLA of the motors for this project? We need this number, because HP and rpm vastly varies in current and VFDs can be significantly different in price and current ratings as well. We need to be 100% sure we choose the correct VFD current rating, which is only based on the motor current rating.

**Response:**

Consider FLA ratings for equipment (with HP given and not FLA) to match CEC table 44.

300. **Proponent Question:**

Page 2 of 817 (1.4.2) states UV reactors would be relocated. Page 6 of 817 (1.5.5) UV assessment would be performed. Was this completed? If so, what are the results, details?

**Response:**

Equipment will be relocated after modifications are made by Calgon, to be billed diretcly to the owner

301. **Proponent Question:**

If UV assessment was not completed, then when we quote the PLC and HMI programming, should we assume programming for “relocating” or “replacement” of the equipment? The difference between the two will impact pricing significantly.

**Response:**

Pricing is not impacted for Contractor. Integration of equipment the same in either instance; coordinate with Calgon representative to confirm functionality of Calgon equipment, under control of the MCP PLC.

302. **Proponent Question:**

Section 03 30 00: Do the interior side of the concrete trench walls get an ordinary finish (3.9.2) or a rubbed finish (3.9.3)?

**Response:**

Use ordinary finish (3.9.2)

303. **Proponent Question:**

Section 09 66 23: Do the lower trench slabs receive and epoxy floor finish?

**Response:**

No

304. **Proponent Question:**

Section 09 91 10: Do the trench walls get painted?

**Response:**

No

305. **Proponent Question:**

Can you please provide clarification on section 06181 glued laminated structural units?

a. All documents indicate we are required to provide Engineering, including sealed shops. We need a waiver in writing from Stantec, otherwise we are going to have to include it. This will be a double up on engineering fees to the owner.
b. Glulam specs says 3 coats cetol, factory applied, at exterior only, one coat Broda at interior. Paint spec says 2 coats factory applied at exterior, gives choice of 3 products

(including Cetol), and WB varnish at interior – does not state factory applied, does not state number of coats.

**Response:**

a. Shop drawings are not required to be certified by an engineer where details are provided in the structural drawings
b. All glulams will have 1 coat factory, two coats field applied throughout. Sansin and Cetol products are approved stains and to be specified as per manufacturer's recommendations for exterior application.

306. **Proponent Question:**

I would to submit an alternate to the Manufacturer listed "Stonhard" in the spec. The equal I would like to propose is Sikafloor® 261CA - System 4

**Response:**

This product is approved as an alternate.

307. **Proponent Question:**

The instructions to tenderers indicate that this is a CCDC Stipulated Price Contract, however, Appendix 1A notes several areas where there are unit price pay items. It is my understanding that in a stipulated price contract, the stipulated price prevails if there is a discrepancy between the schedule of quantities and the quantities installed (or shown on the drawing). In a unit price contract, the actual measured quantities will be paid. Addendum 1 Q. 1 states that this is not a unit price contract. In the civil portion of the work, most of the pay items are listed in Appendix 1A. Can the civil scope of work be converted to a unit price contract in terms of payment in accordance with prices listed in Appendix 1A?

**Response:**

See Addendum Item 3 below.

308. **Proponent Question:**

Can you please review and let me know if I can submit our Kohler generator for the tender.

**Response:**

Frontier power is not approved as an alternate supplier; the information provided does not convey a necessary understanding of the project and scope to warrant inclusion as an alternate.

Furthermore, there are three suppliers all with excellent knowledge of the project scope and desire to submit on this project.

309. **Proponent Question:**

Are waterproof membranes related to Sections 07 13 27 or 07 14 00 required for the valve chamber?

**Response:**

No membranes required.

310. **Proponent Question:**

What portion of the concrete for the valve chamber requires Xypex admixture?

**Response:**

All concrete in valve chamber to have xypex admixture.

311. **Proponent Question:**

Rather surprised that the building does not have a fall arrest anchor system on the roof.

**Response:**

None required or provided.

312. **Proponent Question:**

Glulam specification calls for 3 coats of Cetol, factory applied for Exterior and one coat of "Broda" for Interior. WHILE the Painting Specification calls for 2 coats of factory applied at Exterior and WB varnish at Interior. Please have the specifier clarify.

**Response:**

All glulams will have 1 coat factory, two coats field applied throughout. Sansin and Cetol products are approved stains and to be specified as per manufacturer's recommendations for exterior application.

313. **Proponent Question:**

Basalite Block - 190x90x390 ground face (color to be chosen by the designer)

**Response:**

Please provide a sample to compare how basalite finishes compare to the specified product.

314. **Proponent Question:**

With reference to drawing C202, Rev 2 which shows elevations on the tops of certain existing pipes, and interpolated invert elevations, could you please confirm the indicated elevation of 25.48 at Note 7 is correct. We calculate it to be 25.02.

**Response:**

Interpolated invert elevation at note 7 on C202 should be 25.78m

315. **Proponent Question:**

What is critical for the first tie-in, which is the 500mm, is to determine whether the 900 branch will pass over the existing 500mm upstream of the connection point. Please confirm that the 900 is to pass over top of the 500.

**Response:**

See revised layout on attached drawings C201 and C202. Valve on 760mm diameter line has been moved to the south wesr side of the 500mm dia. Main to allow the tie in to be isolated without needing to cross the 500mm diameter line. The 500mm diameter line can then be abandoned at the point where the 760mm dia. line crosses.

316. **Proponent Question:**

Extending the 900 branch at the time of the first tie-in up to and including the 900 x 760 x 300 Tee and valves is critical to the second tie-in of the 760 and 300 in order to isolate the first tie-in (1200 to 500). In order to facilitate the second tie-in it may be necessary, for safety concerns, to double valve the 760 and 300 at Note 3. These additional valves would remain in place as part of the final installation. The alternative to the additional valves would be to shut down the 1200 / 500 feeder during the second tie-ins. Is this shut down alternative to costly additional valves a possibility?

**Response:**

See revised layout on attached drawings. Valve on 760mm diameter line has been moved to the south wesr side of the 500mm dia. Main to allow the tie in to be isolated without needing to cross the 500mm diameter line. The 500mm diameter line can then be abandoned at the point where the 760mm diameter crosses to facilitate this crossing and the tie in to the 760mm diameter line following commissioning of the 500mm dia. tie in.

317. **Proponent Question:**

Reference drawing A002 – Finish Schedule - Could you please provide specifications for epoxy floor finish?

**Response:**

Has been provided 09 66 23.

## Addendum Item 2
## Supplementary General Condition 12.3 Warranty

Supplementary General Condition Part 12 INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

GC 12.3
WARRANTY 12.3.1 *(delete and replace article 12.3.1 as follows)*

Except for extended warranties as described in paragraph 12.3.6, the warranty period under the *Contract* is two years from the date of *Substantial Performance of the Work.*

12.3.7 *(delete article 12.3.7 in its entirety)*

## Addendum Item 3
## Section 33 – Utilities Quantity Measure

Proponents are instructed to base the lump sum value submitted for Division 33 on the quantities listed for each specific line item described in Schedule 1A for this entire section. Updated Schedule 1A (Revised October 20th, 2016) is attached to this addendum. A completed Schedule 1A will only be required to be submitted by the successful tenderer post award and will be used for measurement and payment under Unit Rate for all items contained in Division 33.

## Addendum Item 4
## Drawings

Air release valve to be installed in existing inline valve chamber on Highway 28. Hand sketch drawing 13-508-D3 Sheet 9 of 10 is attached.

## Addendum Item 5
## Replace clause 263213.2.10.2 with the following:

The main and generator breaker, located in the switchgear, will be controlled by a microcontroller / PLC and operate as either a break before make or make-before-break transfer switch. Functionality for both modes to be allowed, and programmed by the switchgear supplier.

Replace clause 263213.2.10.3 with the following:

Microcontroller / PLC to provide functionality required to operate the transfer scheme as described.

Replace clause 263213.2.10.4 with the following:

Control system will include a graphic interface local to the switchgear allowing diagnostics and maintenance control of the transfer system. Graphic interface to communicate all information pertinent to the operation of the transfer system, including mode of operation, status of breakers, status of sources, instantaneous demand load and all alarms/alarm logs/status logs relating to the transfer system.

**Addendum Item 6**
**Scope Clarification**

Contractor to disregard drawing C100 issued in Addendum 3. The existing conditions that will be present will be as follows:

- Site will be graded to design subgrade at all locations, other than where retaining walls are present in the final design.
- At retaining wall locations, the top of wall grade will be to design subgrade. A 2H:1V slope will catch to the low side elevations.
- Locations of the 2:1 slope will be around the building where fill is against the foundation walls, at the loading bay retaining wall on the west side of the building, and behind the E-house at the south end of the site

**End of Addendum**

**Acknowledgement of this Addendum in your Tender submission is required.**

Clinton J. Crook, SCMP, CPSM
Senior Buyer

# Appendix 1A

**Revised October 20th, 2016**
**See Addendum No. 8 Item 3**

**DETAILED SCHEDULE OF QUANTITIES AND PRICES – GST EXCLUDED**

**Upon award the *Contractor* is required to submit the completed**
**Appendix 1A Detailed Schedule of Quantities and Prices**
**As specified in the Form of Tender paragraph 5.1.1 (i)**

*(All prices and Quotations including the Contract Price shall include all Taxes,* but shall not include *GST, GST* shall be shown separately.)

| ITEM No. | DESCRIPTION | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---|---|---|---|---|---|
| | **01 - General Requirements** | | | | |
| | Mobilization and Demobilization [max. 10% of tender amount] | | | | |
| 01.1 | Mobilization [60% of total mob/demob amount] | 1 | LS | | |
| 01.2 | Demobilization [40% of total mob/demob amount] | 1 | LS | | |
| 01.3 | Construction facilities and continuing overhead | 1 | LS | | |
| 01.4 | Administration and Supervision | 1 | LS | | |
| 01.5 | Insurance | 1 | LS | | |
| | **Environmental Protection** | | | | |
| 01.6 | Temporary erosion and sediment control - installation | 1 | LS | | |
| 01.7 | Temporary erosion and sediment control - maintenance | 12 | month | | |
| 01.8 | Traffic control | 12 | month | | |
| 01.9 | Vehicle access and parking | 1 | LS | | |
| 01.10 | Commissioning - treatment plant | 1 | LS | | |
| 01.11 | Commissioning - pipeline | 1 | LS | | |
| 01.12 | Close out | 1 | LS | | |
| | | | | **Division 01 General Requirements – Sub Total** | |
| | **03 - Concrete** | | | | |
| 03.1 | Concrete | 1 | LS | | |
| 03.2 | Reinforcement | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 03.3 | Formwork | 1 | LS | | |
| 03.4 | Concrete handling and accessories | 1 | LS | | |
| | **Surge Tank & Valve Chamber** | | | | |
| A3 | Concrete | 1 | LS | | |
| A3 | Reinforcement | 1 | LS | | |
| A3 | Formwork | 1 | LS | | |
| A3 | Concrete handling and accessories | 1 | LS | | |
| | | | | **Division 03 Concrete – Sub Total** | |
| | **04 - Masonry** | | | | |
| 04.1 | 190 thick reinforced concrete masonry units; complete | 1 | LS | | |
| 04.2 | 240 thick reinforced concrete masonry units; EW4 | 1 | LS | | |
| 04.3 | 90 thick masonry veneer; EW2 | 1 | LS | | |
| 04.4 | Precast and C.I.P. elements | 1 | LS | | |
| | | | | **Division 04 Masonry – Sub Total** | |
| | **05 - Metals** | | | | |
| 05.1 | Angles cast into edge of concrete trench | 1 | LS | | |
| 05.2 | Grating | 1 | LS | | |
| 05.3 | Steel stairs incl finish | 1 | LS | | |
| 05.4 | Guard rails | 1 | LS | | |
| 05.5 | Handrailing incl uprights | 1 | LS | | |
| 05.6 | Removable railing | 1 | LS | | |
| 05.7 | Structural steel frame | 1 | LS | | |
| 05.8 | Structural steel to roof | 1 | LS | | |
| 05.9 | Steel gutters | 1 | LS | | |
| 05.10 | Miscellaneous steel | 1 | LS | | |
| 05.11 | Roof decking and membrane | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 05.12 | Crane C1 | 1 | LS | | |
| 05.13 | Crane C2 | 1 | LS | | |
| 05.14 | Crane C3 | 1 | LS | | |
| 05.15 | Mechanical enclosure | 1 | LS | | |
| A3 | **Surge Tank & Valve Chamber** | | | | |
| A8 | Surge tank - 10.2 m diam epoxy coated steel tank | 1 | LS | | |
| A3 | Hatches to valve chamber - Owner supplied; collect from EFWQC and transport to site | 2 | ea | | |
| A3 | Hatch to valve chamber | 1 | Ea | | |
| | | | | **Division 05 Metals – Sub Total** | |
| | **06 - Wood and Plastics** | | | | |
| 06.1 | Glulam beams; complete | 1 | LS | | |
| 06.2 | Rough carpentry | 1 | LS | | |
| 06.3 | Finish carpentry | 1 | LS | | |
| 06.4 | Siding (EW4) and trim | 1 | LS | | |
| 06.5 | Columns | 1 | LS | | |
| 06.6 | Exterior wall stud framing and sheathing - EW1 | 1 | LS | | |
| 06.7 | Exterior wall stud framing and sheathing - EW1a | 1 | LS | | |
| 06.8 | Exterior wall stud framing and sheathing - EW1b | 1 | LS | | |
| 06.9 | Exterior wall stud framing and sheathing - EW1c | 1 | LS | | |
| 06.10 | Interior partition - P1 | 1 | LS | | |
| 06.11 | Interior partition - P2 | 1 | LS | | |
| 06.12 | Interior partition - P5 | 1 | LS | | |
| 06.13 | Interior partition - P6 | 1 | LS | | |
| 06.14 | Interior partition - P7 | 1 | LS | | |
| 06.15 | Floor assembly - F1 | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 06.16 | Floor assembly - F2 | 1 | LS | | |
| 06.17 | Mill and fix Owner supplied wooden finishes | 1 | LS | | |
| 06.18 | Millwork | 1 | LS | | |
| | | | | **Division 06 Wood and Plastics – Sub Total** | |
| | **07 - Thermal and Moisture** | | | | |
| 07.1 | Rigid insulation | 1 | LS | | |
| 07.2 | Concrete faced insulation | 1 | LS | | |
| 07.3 | Batt insulation | 1 | LS | | |
| 07.4 | Sprayed insulation | 1 | LS | | |
| 07.5 | Fire caulking | 1 | LS | | |
| 07.6 | Sealants | 1 | LS | | |
| 07.7 | Roofing assembly - R1 | 1 | LS | | |
| 07.8 | Roofing assembly - R3 | 1 | LS | | |
| 07.9 | Roof penetrations | 1 | LS | | |
| 07.10 | Fascias and flashings | 1 | LS | | |
| 07.11 | Waterproof system drainage board | 1 | LS | | |
| | | | | **Division 07 Thermal & Moisture – Sub Total** | |
| | **08 - Doors and Windows** | | | | |
| 08.1 | Doors and hardware | 1 | LS | | |
| 08.2 | Overhead doors | 1 | LS | | |
| 08.3 | Windows and screens - interior | 1 | LS | | |
| 08.4 | Windows and screens - exterior | 1 | LS | | |
| 08.5 | Swing gate | 1 | LS | | |
| | | | | **Division 08 Doors & Windows – Sub Total** | |
| | **09 - Finishes** | | | | |
| 09.1 | Drywall | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 09.2 | Plywood backboards | 1 | LS | | |
| 09.3 | Painting | 1 | LS | | |
| 09.4 | Ceilings | 1 | LS | | |
| 09.5 | Ceramic tile | 1 | LS | | |
| 09.6 | Washroom accessories | 1 | LS | | |
| 09.7 | Stair nosings | 1 | LS | | |
| 09.8 | Tactile warning finishes | 1 | LS | | |
| | | | | **Division 09 Finishes – Sub Total** | |
| | **10 - Specialities** | | | | |
| 10.1 | Toilet and Bath Accessories | 1 | LS | | |
| | | | | **Division 10 Specialties – Sub Total** | |
| | **21 – Fire Suppression** | | | | |
| 21.1 | Fire suppression equipment | 1 | LS | | |
| | | | | **Division 21 Fire Suppression – Sub Total** | |
| | **22 - Plumbing** | | | | |
| 22.1 | Shop drawings and job start up | 1 | LS | | |
| 22.2 | Plumbing | 1 | LS | | |
| 22.3 | Sanitary underground | 1 | LS | | |
| 22.4 | Sanitary above ground | 1 | LS | | |
| 22.5 | Domestic water above ground | 1 | LS | | |
| 22.6 | Water meter and BFP | 1 | LS | | |
| 22.7 | Booster pump | 1 | LS | | |
| 22.8 | Plumbing fixtures | 1 | LS | | |
| 22.9 | Emergency shower and eyewash station | 1 | LS | | |
| 22.10 | Foundation drainage | 1 | LS | | |
| | | | | **Division 22 Plumbing – Sub Total** | |

| | | | | | |
|---|---|---|---|---|---|
| | **23 - HVAC** | | | | |
| 23.1 | Shop drawings and job start up | 1 | LS | | |
| 23.2 | HVAC | 1 | LS | | |
| 23.3 | Duct work | 1 | LS | | |
| 23.4 | Exhaust fans | 1 | LS | | |
| 23.5 | Condensing units | 1 | LS | | |
| 23.6 | Grills, louvres and registers | 1 | LS | | |
| 23.7 | Heating equipment | 1 | LS | | |
| 23.8 | Controls | 1 | LS | | |
| 23.9 | Fire protection | 1 | LS | | |
| 23.10 | Insulation | 1 | LS | | |
| 23.11 | Testing, adjusting and balancing for HVAC | 1 | LS | | |
| 23.12 | Commissioning of HVAC systems | 1 | LS | | |
| | | | | **Division 23 HVAC – Sub Total** | |
| | **25 - Integrated Instrumentation** | | | | |
| 25.1 | Process control and instrumentation | 1 | LS | | |
| 25.2 | PLC programming | 1 | LS | | |
| 25.3 | Control panels | 1 | LS | | |
| 25.4 | Factory testing | 1 | LS | | |
| 25.5 | End-to-end testing | 1 | LS | | |
| 25.6 | Commissioning of instrumentation | 1 | LS | | |
| | | | | **Division 25 Integrated Instrumentation – Sub Total** | |
| | **26 - Electrical** | | | | |
| 26.1 | Job start up | 1 | LS | | |
| 26.2 | Conduit and wiring | 1 | LS | | |
| 26.3 | Feeders and grounding | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 26.4 | Lighting | 1 | LS | | |
| 26.5 | Emergency lighting | 1 | LS | | |
| 26.6 | Power | 1 | LS | | |
| ~~26.7~~ | ~~PLC's~~ | ~~1~~ | ~~LS~~ | | |
| ~~26.8~~ | ~~Instrumentation~~ | ~~1~~ | ~~LS~~ | | |
| 26.9 | MCC / VFD | 1 | LS | | |
| 26.10 | Cable tray ladder | 1 | LS | | |
| 26.11 | Fire alarm system and wiring | 1 | LS | | |
| 26.12 | Communications | 1 | LS | | |
| 26.13 | Radio tower and underground conduits | 1 | LS | | |
| 26.14 | Baseboard heaters | 1 | LS | | |
| 26.15 | Mechanical equipment connections | 1 | LS | | |
| 26.16 | Data | 1 | LS | | |
| 26.17 | Security alarm | 1 | LS | | |
| 26.18 | Secondary ductbank | 1 | LS | | |
| 26.19 | End-to-end testing | 1 | LS | | |
| 26.20 | Commissioning of electrical | 1 | LS | | |
| A3 | Backup generator; complete | 1 | LS | | |
| | | | | **Division 26 Electrical – Sub Total** | |
| | **27 - Communications** | | | | |
| 27.1 | Communication systems; complete | 1 | LS | | |
| | | | | **Division 27 Communications – Sub Total** | |
| | **31 - Earthworks** | | | | |
| 31.1 | Site grading | 1 | LS | | |
| 31.2 | Excavating for ditches and swales | 1 | LS | | |
| 31.3 | Topsoil and finish grading | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 31.4 | Riprap | 1 | LS | | |
| | | | | **Division 31 Earthwork – Sub Total** | |
| | **32 - Exterior Improvements** | | | | |
| | **Treatment Plant** | | | | |
| 32.1 | Granular sub-base | 1 | LS | | |
| 32.2 | Granular base | 1 | LS | | |
| 32.3 | Concrete curb and gutters | 1 | LS | | |
| 32.4 | Concrete sidewalk | 1 | LS | | |
| 32.5 | Coordinate Owner's paving contractor | 1 | LS | | |
| 32.6 | Permanent pavement markings | 1 | LS | | |
| 32.7 | Gravel surface finishes | 1 | LS | | |
| 32.8 | River rock splash pad; 2.0 m x 2.0 m x 0.15 m | 1 | LS | | |
| 32.9 | River rock; min 100 mm thick on geotextile | 1 | LS | | |
| 32.10 | Retaining walls | | | | |
| 32.11 | Retaining wall 1 - lock-block wall | 1 | LS | | |
| 32.12 | Retaining wall 2 - lock-block wall | 1 | LS | | |
| 32.13 | Fencing and gates | 1 | LS | | |
| 32.14 | Hydraulic seeding | 1 | LS | | |
| | **Pipeline** | | | | |
| 32.15 | Topsoil stripping and disposal | 175 | $m^2$ | | |
| 32.16 | Cold milling to maximum 50 mm | 70 | $m^2$ | | |
| 32.17 | Coordinate Owner's paving contractor | 1 | LS | | |
| 32.18 | Topsoil and finish grading | 175 | $m^2$ | | |
| 32.19 | Hydraulic seeding | 175 | $m^2$ | | |
| | | | | **Division 32 Exterior Improvements – Sub Total** | |

| | | | | | |
|---|---|---|---|---|---|
| | **33 - Utilities** | | | | |
| | **Waterworks - Pipeline** | | | | |
| A3 | PVC C900 DR18 200 mm; all depths | 58 | m | | |
| 33.1 | PVC C900 DR18 300 mm diam; all depths | 38 | m | | |
| A3 | PVC C900 DR18 250 mm; all depths | 7 | m | | |
| A3 | Welded steel pipe - 500 mm diam 9.5 mm thick wall; all depths | 5 | m | | |
| A3 | Welded steel pipe - 760 mm diam 9.5 mm thick wall; all depths | 5 | m | | |
| A3 | Welded steel pipe - 900 mm diam 9.5 mm thick wall; all depths | 4 | m | | |
| 33.5 | Welded steel pipe - 1000 mm diam 6.4 mm thick wall; all depths | 58 | m | | |
| 33.6 | Welded steel pipe - 1200 mm diam 9.5 mm thick wall; all depths | 140 | m | | |
| 33.7 | Tee - 300 x 300 x 150 HxHxF | 1 | ea | | |
| A3 | Tee - 300 x 300 x 250 HxFxF | 1 | ea | | |
| ~~33.9~~ | ~~Tee - 500 MJ x MJ x F~~ | ~~1~~ | ~~ea~~ | | |
| A3 | Tee - 900x 760 x 250 W x W x F | 1 | ea | | |
| 33.10 | Tee - 1200 x 1200 x 300 W x W x F | 1 | ea | | |
| 33.11 | Tee - 1200 x 1200 x 500 W x W x W | 1 | ea | | |
| A3 | Tee - 1200 x 900 x 500 W x F x F | 1 | ea | | |
| A3 | Tee - 1200 x 1200 x 900 W x W x W | 1 | ea | | |
| ~~33.12~~ | ~~Wye - 250F x 250MJ x 250MJ~~ | ~~1~~ | ~~ea~~ | | |
| ~~33.13~~ | ~~Wye - 500 W x W x W~~ | ~~1~~ | ~~ea~~ | | |
| ~~33.14~~ | ~~Wye - 500F x MJ x MJ~~ | ~~1~~ | ~~ea~~ | | |
| ~~33.15~~ | ~~Wye - 900F x F x F~~ | ~~1~~ | ~~ea~~ | | |
| 33.16 | Tee - 1200W x 1200W x 900W | 1 | ea | | |
| ~~33.17~~ | ~~Cross - 760F x 250F x 760MJ x 760MJ~~ | ~~1~~ | ~~ea~~ | | |
| A3 | Bend - 250 mm diam. 11.25 deg H x F | 1 | ea | | |
| A3 | Bend - 250 mm diam. 22.5 deg H x F | 1 | ea | | |

| | | | | | |
|---|---|---|---|---|---|
| A3 | Bend - 250 mm diam. 45 deg H x H | 2 | ea | | |
| A3 | Bend - 300 mm diam. 30 deg H x H | 2 | ea | | |
| A3 | Bend - 500 mm 45 deg W x W | 1 | ea | | |
| A3 | Bend - 760 mm 64,3 deg W x W | 1 | ea | | |
| ~~33.18~~ | ~~Reducer - 900F x 500F~~ | ~~1~~ | ~~ea~~ | | |
| ~~33.19~~ | ~~Reducer - 900F x 760W~~ | ~~1~~ | ~~ea~~ | | |
| A8 | Reducer – 1050W x 1000W | 1 | ea | | |
| A3 | Blind flange - 500 mm | 1 | ea | | |
| 33.20 | Blind flange - 900 mm | 1 | ea | | |
| 33.21 | Gate valve - 250 F x F | 1 | ea | | |
| A3 | Gate valve - 250 F x H | 1 | ea | | |
| 33.22 | Gate valve - 300 F x H | 3 | ea | | |
| 33.23 | Gate valve - 300 F x F | 2 | ea | | |
| 33.24 | Gate valve - 500 F x F | 1 | ea | | |
| A3 | Gate valve - 760 F x F | 1 | ea | | |
| 33.25 | Gate valve - 900 F x F | 1 | ea | | |
| 33.26 | Cap - 250 mm | 1 | ea | | |
| A3 | Cap - 500 mm | 1 | ea | | |
| A3 | Cap - 760 mm | 1 | ea | | |
| 33.27 | 150 mm Valmatic combination air valve (dual body) c/w air / vacuum valve model No. 106S & air release valve model 38.2; cut into 6.4 mm 1200 mm steel pipe in inline valve chamber on Hwy 28 and install c/w 150 mm F x F gate valve; pipe coating and lining to be repaired upon completion [requires entry into the pipe from manhatch at 2+273] | 1 | LS | | |
| A3 | 150 mm Valmatic combination air valve (dual body) c/w air / vacuum valve model No. 106S & air release valve model 38.5; Hwy 28 Tie-Ins | 3 | ea | | |
| 33.28 | Fire hydrant assembly | 1 | ea | | |
| A3 | Service connection - 19 mm diam. HDPE DR7.3 | 1 | ea | | |
| A8 | Ultrasonic flowmeter; 300 mm diam. | 1 | ea | | |

| | | | | | |
|---|---|---|---|---|---|
| A3 | Ultrasonic flowmeter; 500 mm diam. | 1 | ea | | |
| A3 | Ultrasonic flowmeter; 760 mm diam. | 1 | ea | | |
| | **Tie-Ins** | | | | |
| 33.29 | 200 mm to existing 200 mm HDPE at Treatment Plant | 1 | ea | | |
| 33.30 | 250 mm to existing 250 mm AC line at Powerhouse Rd | 1 | ea | | |
| 33.31 | 250 mm to existing 250 mm PVC line at Hwy 28 | 1 | ea | | |
| 33.32 | 500 mm to existing 500 mm steel line at Hwy 28 | 2 | ea | | |
| 33.33 | 760 mm to existing 760 mm steel line at Hwy 28 | 1 | ea | | |
| 33.34 | 1000 mm to existing 1000 mm welded steel at treatment building | 1 | ea | | |
| 33.35 | 1200 mm to existing 1200 mm at Powerhouse Rd | 1 | ea | | |
| 33.36 | Blow down chamber and assembly | 1 | ea | | |
| 33.37 | 75 mm RPVC conduit | 220 | m | | |
| 33.38 | 1.5 m x 1.5 m pullboxes H20 load rated | 2 | ea | | |
| | **Pipe Culverts** | | | | |
| A3 | 100 mm PVC DR35 | 30 | m | | |
| 33.39 | 300 mm PVC DR35 | 10 | m | | |
| 33.40 | Power and communication civil work | 1 | LS | | |
| 33.41 | Sanitary system complete | 1 | LS | | |
| 33.42 | Drain system complete | 1 | LS | | |
| 33.43 | Manholes | 1 | LS | | |
| A3 | 1050 mm diam. sump manhole; Std Drg S1; Hwy 28; complete | 1 | ea | | |
| 33.44 | Catchbasins | 1 | LS | | |
| 33.45 | Lawn drains | 1 | LS | | |
| 33.46 | Headwalls | 1 | LS | | |
| | **Waterworks - Surge Tank & Valve Chamber** | | | | |
| A8 | PVC C900 DR28 100 mm; all depths | 4 | m | | |

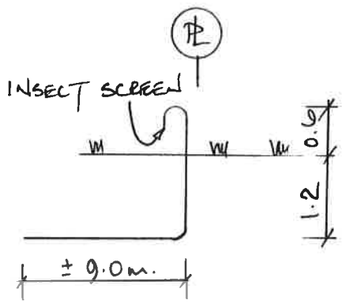
| | | | | | |
|---|---|---|---|---|---|
| A8 | PVC C900 DR18 200 mm; all depths | 144 | m | | |
| A8 | PVC DR35 300 mm; all depths | 157 | m | | |
| A8 | Welded steel pipe – 900 mm diam 6.4 mm thick wall; all depths | 27 | m | | |
| A3 | Welded steel pipe – 1000 mm diam 6.4 mm thick wall; all depths | 20 | m | | |
| A3 | Reducer – 900W x 1000W | 2 | ea | | |
| A3 | Bends – 1000 mm 42.40 degrees | 2 | ea | | |
| A3 | Bends – 1000 mm 45.00 degrees | 1 | ea | | |
| A3 | Bends – 1000 mm 50.19 degrees | 1 | ea | | |
| A8 | Tee – 300 x 300x 100 H x H x H | 1 | ea | | |
| A3 | Tee - 900 x 900 x 900 W x F x F | 2 | ea | | |
| A3 | Tee - 1000 x 1000 x 200 W x W x W | 1 | ea | | |
| A8 | Gate valve - 100 F x F | 2 | ea | | |
| A3 | Gate valve - 200 H x H | 1 | ea | | |
| A3 | Gate valve - 900 F x F - free issue by Owner | 3 | ea | | |
| A8 | Dismantling joints - 900 mm diam. – free issue by Owner | 3 | ea | | |
| | **Tie-Ins** | | | | |
| A3 | 1000 mm to existing 1000 mm welded steel at access road | 2 | ea | | |
| | | | | **Division 33 Utilities – Sub Total** | |
| | **40 - Process Integration** | | | | |
| 40.1 | Shop drawings and job start up | 1 | LS | | |
| 40.2 | Process piping and valves system | 1 | LS | | |
| 40.3 | Pipe hangers and supports | 1 | LS | | |
| 40.4 | Tie-in - air system to existing 200 mm diam HDPE DR8 pipes | 2 | ea | | |
| | | | | **Division 40 Process Integration – Sub Total** | |
| | **43 – Process Gas and Liquid Handling - Pumps** | | | | |
| 43.1 | Vertical turbine pumps; Owner supplied | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| 43.2 | Fire pump; pipework and hydrant system complete | 1 | LS | | |
| | | | | **Division 43 Process Gas & Liquid Handling Pumps – Sub Total** | |
| | **44 – Pollution Control Equipment – Chemical Storage Tanks** | | | | |
| 44.1 | Liquid storage tanks for sodium hypochlorite system; Owner Supplied; transport, install and pipe | 1 | LS | | |
| | | | | **Division 44 Pollution Control Equipment – Chemical Storage Tanks – Sub Total** | |
| | **46 - Water and Wastewater Equipment** | | | | |
| 46.1 | UV system; relocate from EFWQC, adapt, install and commission | 1 | LS | | |
| | | | | **Division 46 Water & Wastewater Equipment – Sub Total** | |
| | **Summary** | | | | |
| | Division 01 - General Items | 1 | LS | | |
| | Division 03 - Concrete | 1 | LS | | |
| | Division 04 - Masonry | 1 | LS | | |
| | Division 05 - Metals | 1 | LS | | |
| | Division 06 – Wood and Plastics | 1 | LS | | |
| | Division 07 - Thermal and Moisture | 1 | LS | | |
| | Division 08 - Doors and Windows | 1 | LS | | |
| | Division 09 - Finishes | 1 | LS | | |
| | Division 10 - Specialties | 1 | LS | | |
| | Division 21 – Fire Suppression | 1 | LS | | |
| | Division 22 - Plumbing | 1 | LS | | |
| | Division 23 - HVAC | 1 | LS | | |
| | Division 25 - Integrated Instrumentation | 1 | LS | | |
| | Division 26 - Electrical | 1 | LS | | |
| | Division 27 - Communications | 1 | LS | | |
| | Division 31 - Earthworks | 1 | LS | | |

| | | | | | |
|---|---|---|---|---|---|
| | Division 32 - Exterior Improvements | 1 | LS | | |
| | Division 33 - Utilities | 1 | LS | | |
| | Division 40 - Process Integration | 1 | LS | | |
| | Division 43 – Process Gas and Liquid Handling | 1 | LS | | |
| | Division 44 – Pollution Control Equipment | 1 | LS | | |
| | Division 46 - Water and Wastewater Equipment | 1 | LS | | |

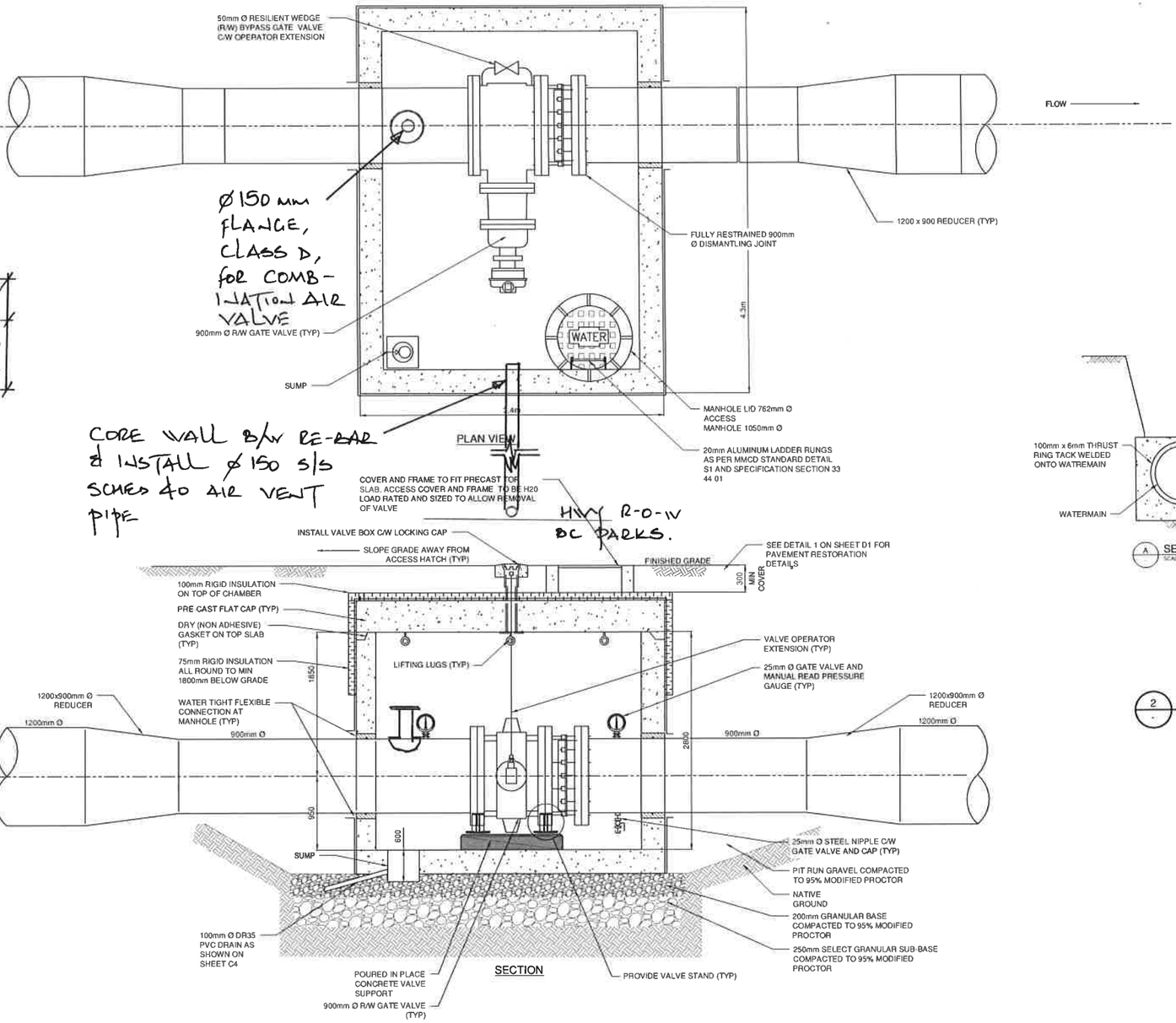
| | |
|---|---|
| **Sub-Total:** | **$** |
| **GST (5%):** | **$** |
| **Total:** | **$** |

— HWY 28 —




VENT PIPE SCHEMATIC

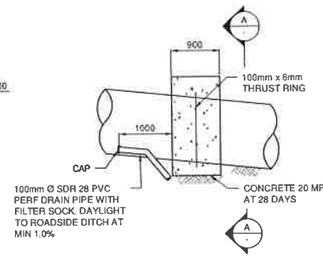
ALSO SEE DETAIL DRAWING 13-508-D5 FOR 550m SECTION FOR AIR VALVE MODEL & PAINT COLOUR FOR VENT




1 - INTERCONNECT ISOLATION VALVE CHAMBER SECTION
SCALE: NTS




A - SECTION
SCALE: NTS




GENERAL NOTE:

1. TRENCH DAMS TO BE LOCATED AT A MAXIMUM OF 25m INTERVALS.

2 - TRENCH DAM DETAIL DETAIL
SCALE: NTS

BC 1 CALL 1-800-474-6886

INFORMATION SHOWN ON THIS DRAWING IS COMPILED FROM NUMEROUS SOURCES AND MAY NOT BE COMPLETE OR ACCURATE. THE CITY OF CAMPBELL RIVER IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING.



| NO. | ISSUE/REVISION | APP'D BY | DATE | CONFD BY | DATE |
|---|---|---|---|---|---|
| 1 | ISSUED FOR CONSTRUCTION | AG | 14/10/09 | | |

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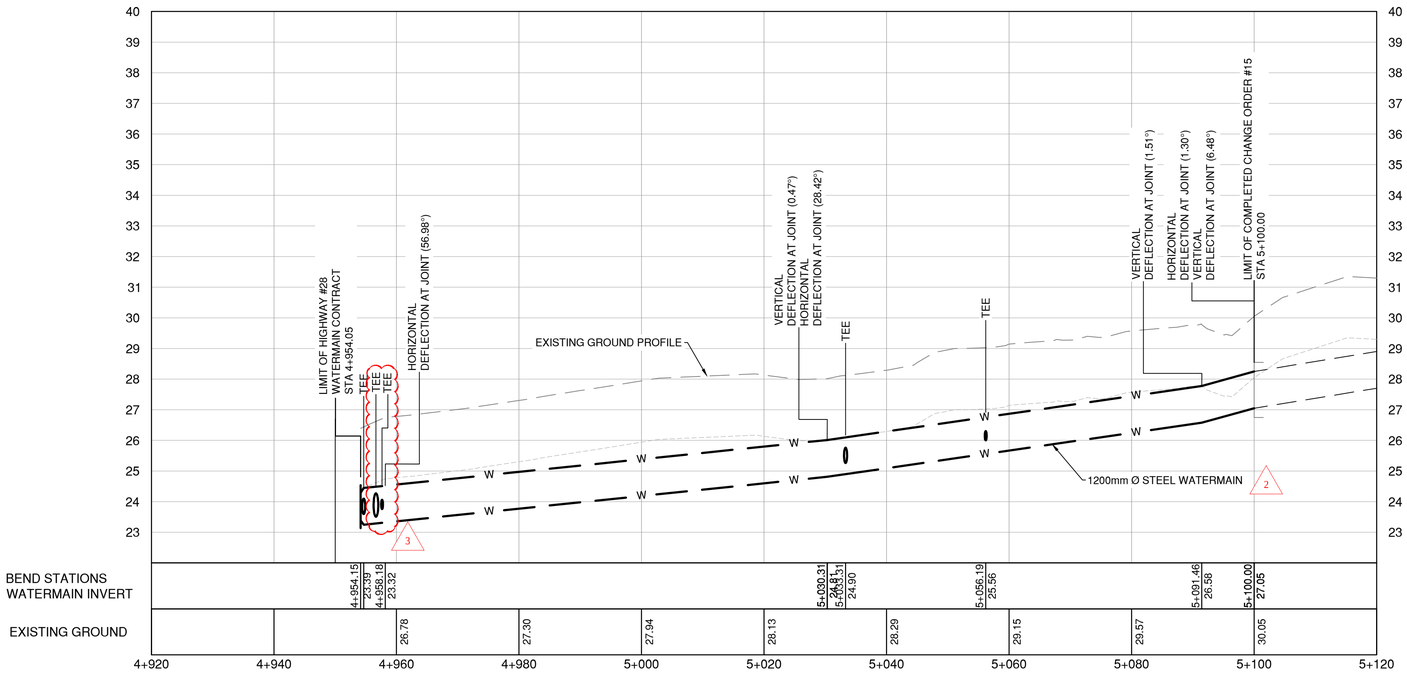
Victoria, BC V9A 6X5
www.stantec.com

TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 PHASE 1
CIVIL DETAILS

DRAWING NO.: 13-508- D3
PROJECT: 112311316
SHEET 9 OF 10
REV. —

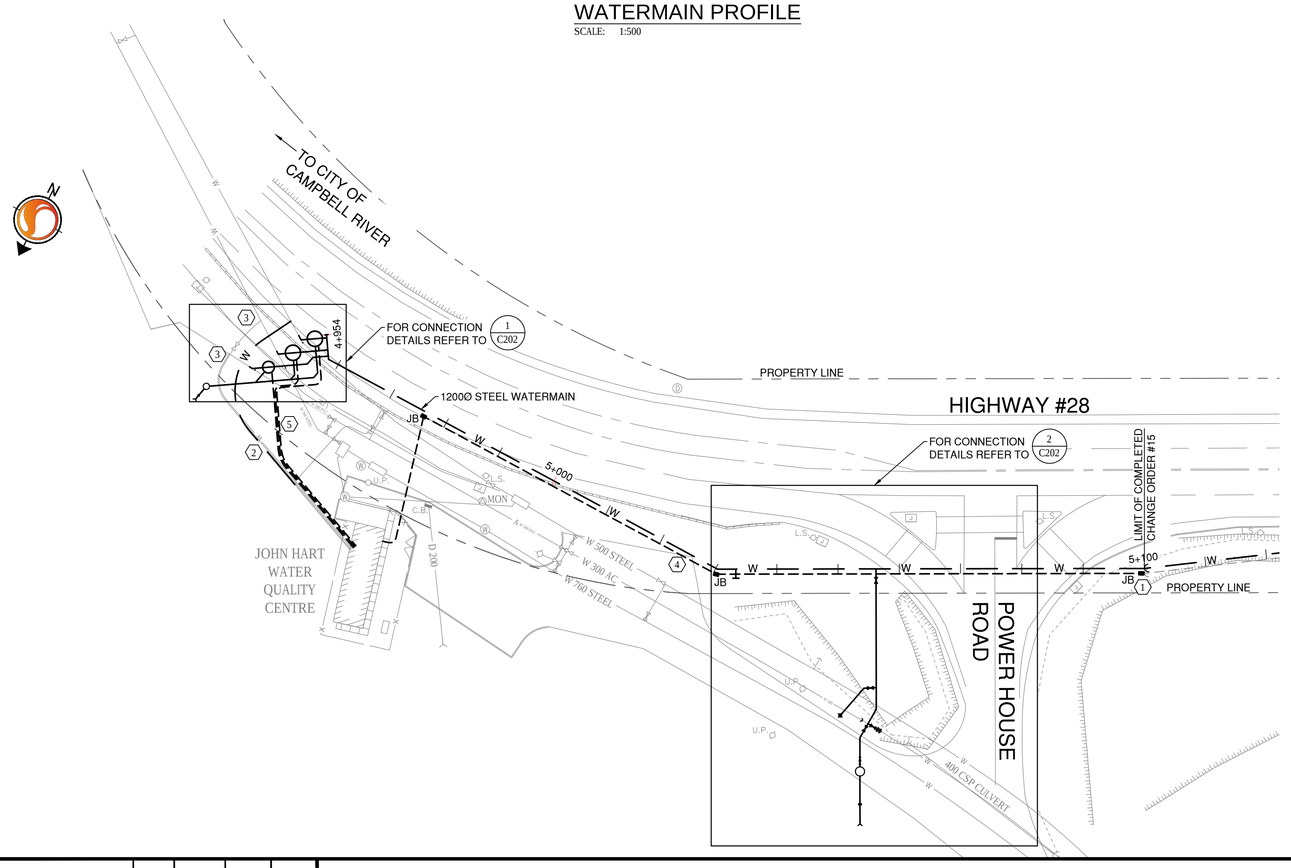
DRAWING PATH: W:\1123\active\112311316\4_drawings_current\watermain.pln\\112311316_details_pln1.dwg Tue 11316_d3 Oct 09, 2014 10:56:49am

DESTROY PRINTS OF PREVIOUS REVISION




## WATERMAIN PROFILE

SCALE: 1:500




## CONSTRUCTION NOTES:

1. MAKE CONNECTION TO EXISTING 1200Ø STEEL WATERMAIN.
2. EXTEND 19mm Ø PE WATER SUPPLY LINES AS SHOWN. INSTALL CURB STOPS AT CONNECTION POINTS.
3. CONFIRM LOCATION OF WATER SUPPLY LINES.
4. INSTALL COMMUNICATION DUCT. REFER TO SHEET C301 FOR DETAILS.
5. ELECTRICAL CONDUIT. REFER TO ELECTRICAL FOR DETAILS

## GENERAL NOTES

1. RESTORE CROSSWALK, ASPHALT AND PAINTLINES FOLLOWING PIPE INSTALLATION. FOR ASPHALT PAVEMENT STRUCTURE REFER TO C301 FOR DETAILS. CONTRACTOR TO COORDINATE ALL WORK WITH ASPHALT CONTRACTOR. ALL GRAVEL PLACEMENT AND PREPARATION BY CONTRACTOR. ASPHALT PAVING/ MILLING BY ASPHALT CONTRACTOR.

## CONSTRUCTION SEQUENCING:

- EMERGENCY CONNECTION POINT TO BE INSTALLED MINIMUM 6 MONTHS IN ADVANCE OF COMPLETION DATE. SEE SHEET 202 FOR DETAILS.
- REMAINING TIE-INS TO TO OCCUR AFTER STATION HAS BEEN DETERMINED TO BE OPERATIONAL.
- ORDER OF TIE-IN
  1. CONNECT 500mm Ø STEEL
  2. ESTABLISH PROCESS FLOW FROM NEW FACILITY
  3. ISOLATE EXISTING CHLORINATION
  4. CONNECT 760mm Ø STEEL

1:200 0 2 6 10m

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| NO. | REVISION/ISSUE | APP'D BY | DATE | CONST'D BY | DATE |
|---|---|---|---|---|---|
| 3 | ADDENDUM 8 | AG | 16/10/20 | | |
| 2 | ADDENDUM 2 | AG | 16/09/23 | | |
| 1 | ISSUED FOR TENDER | AG | 16/09/02 | | |

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|---|---|
| DESIGNED: SS | SCALE: 1:200 |
| DRAWN: OB | DATE: 16/10/20 |
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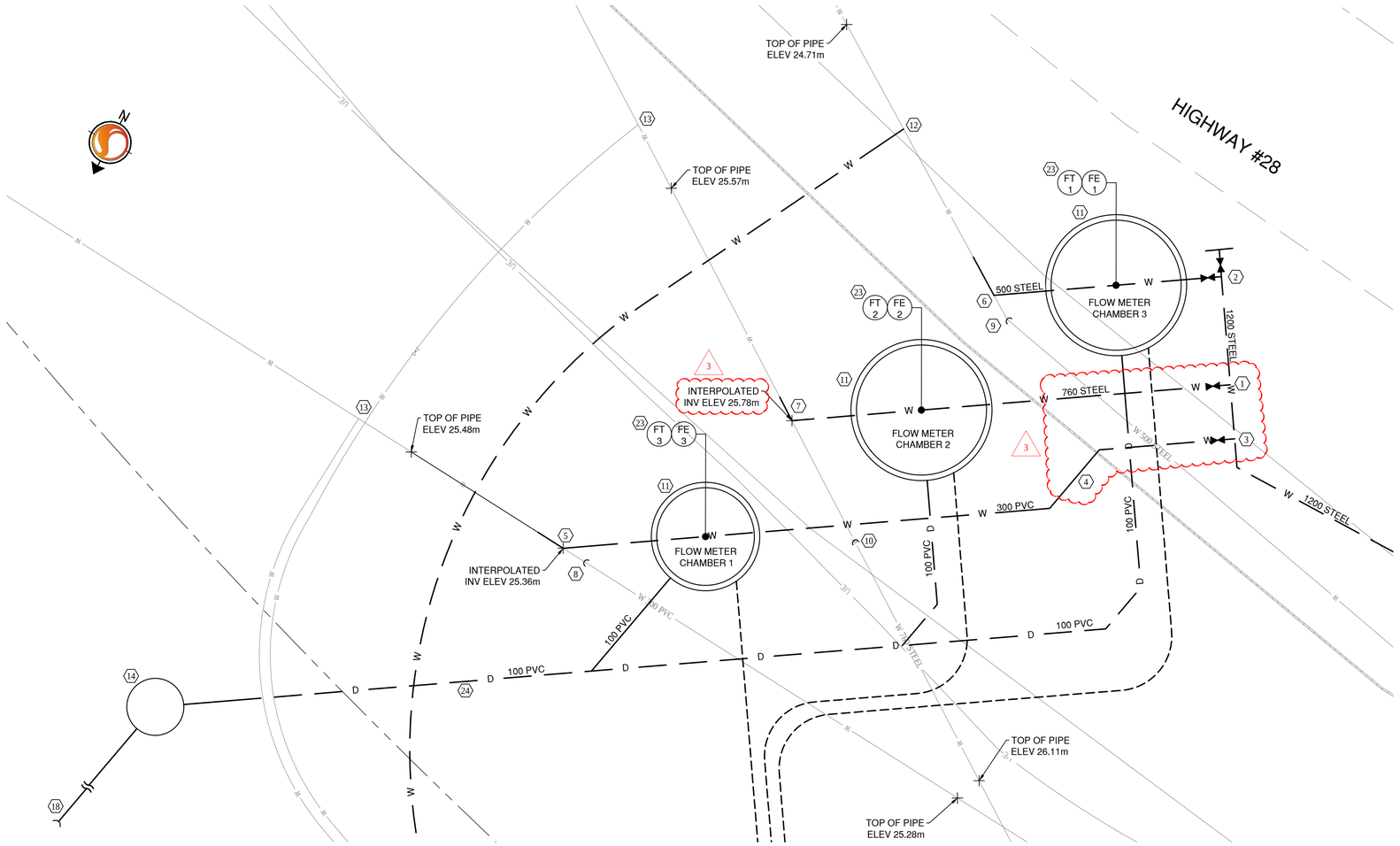
TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING – CONTRACT 2

JOHN HART WATER QUALITY CENTRE PLAN AND PROFILE

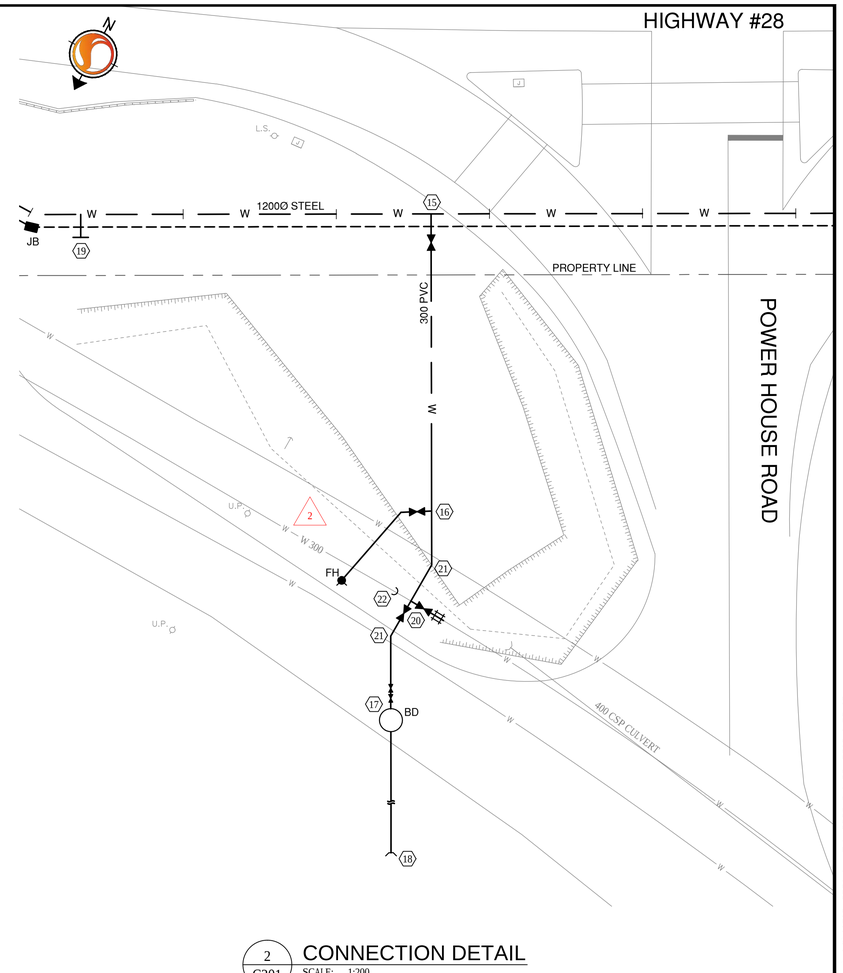
DRAWING NO. 15-508- C201

PROJECT: 112311316

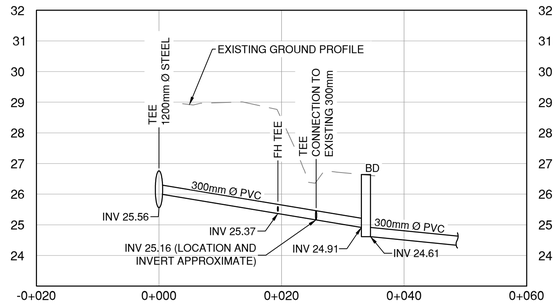
REV. 3




2 1/C201 CONNECTION DETAIL
SCALE: 1:50




2 C201 CONNECTION DETAIL
SCALE: 1:200




3 - BLOWDOWN CONNECTION PROFILE
SCALE: 1:500

## CONSTRUCTION NOTES:

3 2 (1) INSTALL
1 - 1200 W X 1200 W X 760 F TEE
1 - 760 F X F GATE VALVE (DIRECT BURY)

(2) INSTALL
1 - 1200 W X 900 F X 500 F TEE
1 - 900 F X F GATE VALVE (DIRECT BURY)
1 - 900 BLIND FLANGE
1 - 500 F X F GATE VALVE (DIRECT BURY)

3 2 (3) INSTALL
1 - 1200 W X 1200 F X 300 F TEE
1 - 300 F X F GATE VALVE (DIRECT BURY)

(4) 2 - 45° HORIZONTAL BENDS

2 (5) 22.5° + 11.25° HORIZONTAL BEND AND MAKE CONNECTION TO EXISTING 300 PVC. CONFIRM ELEVATION AT TIE IN PRIOR TO CONSTRUCTION.

2 (6) 66.13° HORIZONTAL BEND AND MAKE CONNECTION TO EXISTING 500 STEEL USING 500 MJ. CONFIRM ELEVATION AT TIE IN PRIOR TO CONSTRUCTION.

2 (7) 67.21° HORIZONTAL BEND AND MAKE CONNECTION TO EXISTING 760 STEEL USING 760 MJ. CONFIRM ELEVATION AT TIE IN PRIOR TO CONSTRUCTION.

2 (8) CAP AND ABANDON EXISTING 300 PVC

(9) CAP AND ABANDON EXISTING 500 STEEL

(10) CAP AND ABANDON EXISTING 760 STEEL

(11) FLOW METER CHAMBER C/W ULTRASONIC FLOW METER, ANTI-SIPHON VALVE AND 50mm TEE WITH BALL VALVE. REFER TO C304 FOR DETAILS

(12) EXTEND 19mm Ø PE WATER SUPPLY LINE AS SHOWN. INSTALL CURB STOPS AT CONNECTION POINTS.

(13) CONFIRM LOCATION OF WATER SUPPLY LINE

2 (14) INSTALL 1050mm SUMP MANHOLE AS PER MMCD STANDARD DETAIL S1. EXACT LOCATION AND ELEVATION TO BE CONFIRMED IN FIELD.

(15) INSTALL
1 - 1200 W X 1200 W X 300 F TEE
1 - 300 FXH GATE VALVE

(16) INSTALL
1 - 300 H X 300 H X 150 F TEE
1 - FIRE HYDRANT AS PER MMCD STANDARD DETAIL W4

(17) INSTALL BLOW DOWN CHAMBER. REFER TO C302 FOR DETAILS.

(18) 300Ø PVC DRAIN TO DAYLIGHT. CONFIRM EXACT LOCATION IN FIELD WITH ENGINEER.

(19) EMERGENCY CONNECTION POINT
INSTALL
1 - 1200 X 1200 X 500 WELDED TEE.
1 - 500 BLIND FLANGE

2 (20) MAKE CONNECTION TO EXISTING 300Ø AC WATERMAIN AS FOLLOWS:
1 - 300 H X 300 F X 300 F
1 - 300 FXF GATE VALVE
1 - 300 FXH GATE VALVE
1 - 300 ROBAR COUPLING

(21) 30° HORIZONTAL BEND

2 (22) CAP AND ABANDON 300 AC

(23) SUPPLY AND INSTALL ULTRASONIC FLOWMETER. WIRE POWER AND SIGNAL CABLE BACK TO JHWQC BUILDING. TERMINATE POWER TO UPS CIRCUIT. TERMINATE 4-20mA INSTANT FLOW SIGNAL TO AVAILABLE PLC INPUT.

2 (24) 100mm Ø PVC DRAIN LINE AT MINIMUM 1.0%. ASSUME 2.5m COVER OVER ENTIRE LENGTH; EXCEPT PROFILE TO BE CONFIRMED IN FIELD.

## GENERAL NOTES

1. RESTORE CROSSWALK, ASPHALT AND PAINTLINES FOLLOWING PIPE INSTALLATION. FOR ASPHALT PAVEMENT STRUCTURE REFER TO C301 FOR DETAILS. CONTRACTOR TO COORDINATE ALL WORK WITH ASPHALT CONTRACTOR. ALL GRAVEL PLACEMENT AND PREPARATION BY CONTRACTOR. ASPHALT PAVING/ MILLING BY ASPHALT CONTRACTOR.

2 2. TOP OF PIPE ELEVATION INFORMATION OBTAINED ON 2016.09.09 BY HIGHLAND ENGINEERING AND SURVEYING

0 2 6 10m
1:200

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|---|---|---|---|---|---|
| 3 | ADDENDUM 8 | AG | 16/10/20 | | |
| 2 | ADDENDUM 5 | AG | 16/10/07 | | |
| 1 | ISSUED FOR TENDER | AG | 16/09/02 | | |

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TITLE:
PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING – CONTRACT 2

JOHN HART WATER QUALITY CENTRE WATERMAIN TIE–IN DETAILS

DRAWING NO. 15-508- C202
PROJECT: 112311316
REV. 3





DRAWING PATH: \\CD1208-FOA\workgroup\123\active\112311316\4_drawings_current\pump_station\civil\11316_C201.dwg Tab C202 Oct 20, 2016 1:52:46pm