



TENDER 16-20

WATER TREATMENT BUILDING

ADDENDUM NO. 3

September 30th, 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

60. Proponent Question:

There does not appear to be a pay item for the 3 flowmeters on C202 & C304.

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A **Revised September 30th, 2016** as attached with this addendum.

61. Proponent Question:

Tender item 33.2 "Welded steel pipe -250 mm diam....." does not appear on the plans, however there is 250 mm PVC on C202 with no pay item. Which is correct, steel or PVC?

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A **Revised September 30th, 2016** as attached with this addendum.

62. Proponent Question:

Tender items 33.3 and 33.4 quantities are double what is on the plans sheet C202. In order to calculate representative unit prices the quantities should be closer to actual field measurement.

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A **Revised September 30th, 2016** as attached with this addendum.

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63. Proponent Question:

There is no pay item for 900 mm welded steel pipe. There is 4 LM showing on C202.

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A (**Revised September 30th, 2016**) as attached with this addendum.

64. Proponent Question:

Tender item 33.8 "Tee 300x300x250 HxHxF" should be a HxFxF configuration to correspond to item 20 on C202.

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A (**Revised September 30th, 2016**) as attached with this addendum.

65. Proponent Question:

Item 33.16 "Wye – 1200F x 1200F x 900F" is incorrectly configured. As per item #1 on C202 it should be "Tee - 1200W x 1200W x 900W".

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A (**Revised September 30th, 2016**) as attached with this addendum.

66. Proponent Question:

The following 8 bid items do not appear on the plans or correspond with any work scope of the project; 33.9, 33.12, 33.13, 33.14, 33.15, 33.17, 33.18, and 33.19.

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A (**Revised September 30th, 2016**) as attached with this addendum.

67. Proponent Question:

There are 14 various types of water fittings and valves on C202 that do not have pay items in the Form of Tender which are as follows;

- **Tee** 1200W x 900F x 500F
- **Tee** 1200W x 1200W x 900W
- **Tee** 900W x 760F x 250F
- **Blind flange** – 500 mm
- **Gate Valve** – 250 mm F x H
- **Gate Valve** – 760 mm F x F

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- **Cap** 500 mm
- **Cap** 760 mm
- **Bend** 250 mm 45 deg H x H
- **Bend** 250 mm 22.5 deg H x F
- **Bend** 250 mm 11.25 deg H x F
- **Bend** 300 mm 30 deg H x H
- **Bend** 500 mm 45 deg W x W
- **Bend** 760 mm 64.3 deg W x W.

Response:

Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A **(Revised September 30th, 2016)** as attached with this addendum.

68. Proponent Question:

On the tender form pages 14 of 22, 26 - Electrical I believe items 26.7 and 26.8 are redundant because they are covered by 25.1.

Response:

Line items 26.7 and 26.8 should not be populated, relying only on 25.1. Delete the original Appendix 1A Detailed Schedule of Quantities and Prices and replace with Appendix 1A **(Revised September 30th, 2016)** as attached with this addendum.

69. Proponent Question:

Can division 25 09 01 thru to 25 09 94 be shown on the tender form as DDC BMS control to ensure it is clear that the PLC + instrumentation is clearly different than the BMS.

Response:

Clarification: In appendix 1A the price breakdown noted under 23.8 Controls refers to the HVAC controls system detailed in spec sections 250901, 250913, 250922, 250993 and 250994. The price breakdown noted under 25.3 Control panels refers to the Process controls detailed in spec sections 250501, 251400, 253101 and 259000.

70. Proponent Question:

Request for alternate products from SOPREMA as follows:

DIVISION 7: Section 07 13 27

2.1.1 : Horizontal: Grace Preprufe 300R by Grace Construction Products.

Alternate: SOPREMA COLPHENE BSW-V

2.1.2 : Vertical: Grace Preprufe 160R by Grace Construction Products.

Alternate: SOPREMA COLPHENE BSW-H

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DIVISION 7: Section 07 14 00

2.1.1 : Procor® fluid applied membranes by Grace Construction Products

Alternate: SOPREMA COLPHENE 3000 (Self adhesive membrane) or SOPREMA COLPHENE Torch N Stick (Torch applied membrane for high water table situations and or hydrostatic pressure)

Response:

Section 07 13 27 alternates: approved provided it meets the performance and testing requirements of the specification.

Section 07 14 00 alternates: not approved. Fluid applied required.

71. Proponent Question:

Please provide a detail for the Air Valve, Tender Item 33.27.

Response:

Model number has been provided and is sufficient.

72. Proponent Question:

What is the size of the air release valves in the 3 flowmeter chambers as shown on C304?

Response:

Model number has been provided and is sufficient.

73. Proponent Question:

Can I request shop drawings and BOM for the vertical turbine pump package?

Response:

Not available.

74. Proponent Question:

Please confirm the extent of the Owner supplied 1200mm and 1000mm steel watermain. Please confirm if they will be supplied with coatings and the contractor will only be responsible for the site applied coatings at the weld locations. Is the 760mm pipe also Owner supplied?

Response:

No pipe is owner supplied. All pipes and associated coatings to be provided by contractor under this scope of work.

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75. Proponent Question:

Door 003 is missing from the door schedule.

Response:

Door 003:

Size: 915x2135

Type: painted hollow metal door and frame c/w sidelight (450mm wide x height of door c/w 10mm single glazing)

Hardware: function - store room

hardware – butt hinges, closer, door stop

76. Proponent Question:

Please confirm the project specific specified U-Value of 1.75 W/m²*K will need to be confirmed via computerized thermal modelling.

Response:

Based on Ashrae 90.1 for zone 4 buildings, a U value of 2.84W/m²*k is the required thermal resistance for the glazing system and can be used when designing window systems.

Computerized modelling not required.

77. Proponent Question:

We'd like to propose Alumicor 2600 Thermawall for the curtainwall, an alternate to Kawneer 1600. Please note Kawneer 1600 1-2 will not meet the specified U-Value.

Response:

Approved.

78. Proponent Question:

Please confirm the sealed unit make-up. Will PPG industries be an approved alternate supplier of LOW E coatings?

Response:

Yes.

79. Proponent Question:

Please confirm the glass make-up for the interior curtainwall windows.

Response:

10mm single pane safety glass

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80. Proponent Question:

Please confirm class 1 clear anodized finish is correct.

Response:

Colour to be confirmed through standard colour range during shop drawing process.

81. Proponent Question:

Is a Door Hardware Schedule is going to be issued for SECTION 08 71 00?

Response:

Hardware schedule is on drawing is on A002.

82. Proponent Question:

With reference to Drawing C202 please provide profiles for Connection Details 1 and 2. Specifically we need to determine where the new 900 mm steel, 760 mm steel, 250 mm PVC, and 100 mm PVC drain are to be installed relative to the existing mains on Detail 1. Similarly for Detail 2 please provide a profile showing new installation relative to existing supply mains.

Response:

Question received and will be responded to in Addendum No. 4

83. Proponent Question:

In order to facilitate a video inspection of the entire supply main we will have to access manway hatches on previously installed works. Please provide a plan/profile of the existing 1200 / 1000 mm mains showing the hatch locations.

Response:

Only section requiring video would be the new sections installed provided the contractor has some means of securing any exposed openings at the end of each working shift so as to not allow any wildlife to get in there.

84. Proponent Question:

Detail 1 on Drawing C105 indicates that the 1000mm Dia Steel Water Main is owner supplied, there is a note on drawing C201 indicating that the 1200mm Dia Steel Water Main is owner supplied – can you please confirm that the steel water main is owner supplied? If the steel pipe is owner supplied please provide shop drawings and a list of the fittings that will be provided? This will be required to determine the scope for welding and coating.

Response:

No pipe is owner supplied. All pipe and fittings to be provided by contractor under this scope of work.

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85. Proponent Question:

Item 1.2.5 of Section 01 12 00 states "Once contract 1 is complete, or near a state of completion, a survey of the site will be conducted by the City and the information provided to the contractor. This information will be made available as an addendum". Is a recent site survey available to assist in determining the extent of site clearing/stripping and excavation required?

Response:

Existing conditions drawing has been provided in Addendum 3.

86. Proponent Question:

Is an as-built drawing available for the existing steel watermains that are to be tied-in to?

Response:

No.

87. Proponent Question:

For the emergency generator for the above mentioned tender, could you please advise which payment item in division 26 – Electrical should we place the emergency generator in? As there is separate payment item for PLC's, MCC/VFD's. it's not very clear which item we should put the cost of the emergency genset. Item 26.6 Power or should it be in a separate item?

Response:

This contract form is a CCDC 2 Stipulated Price contract. Tenderer is only required to submit completed Appendix 1 with tender submission.

Appendix 1A is required to be completed and submitted by the successful tenderer post award and will be used for processing progress claims. Backup generator, complete has been added to Appendix 1A as attached.

88. Proponent Question:

The answer to Proponent Question 11 in Addendum 2 says the top of concrete wall is to be 400mm above the steel angle support and to match the top of concrete elevations shown on the elevations. If the 400mm requirement is to be met, the top of concrete must be 400mm higher than shown on the elevations. The question that was previously answered was related to GL 1 and 5, but the response prompts the following question regarding GL A: 3/S102 and 4/S102 shows the top of concrete on the south elevation to be 142.20. Does this need to be revised to 142.60 to be 400mm above the angle?

Response:

The top of concrete on GL A is at 142.2 as shown

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89. Proponent Question:

How is the stainless steel L100x75x6.4 LLV for the trench grating installed along GL A into the foundation wall? How about at the concrete cross beams?

Response:

The grating is not required to be connected to the concrete beams or foundation wall.

90. Proponent Question:

Detail 4/A404 is incorrect. There is a trench with grating directly next to the overhead door. If the OH door is installed on top of the grating, air will constantly flow into the building.

Response:

Add 300mm x 200mm thick x 3000mm wide cantilievered concrete slab at o/h door location to provide a solid surface for the door to close onto.

91. Proponent Question:

Detail 4/A403 is missing the trench.

Response:

Will be updated for IFC set

92. Proponent Question:

4/S102 says the max height of retained soil is 3000mm. The max height of soil required appears to be 3560mm based on the proposed grades.

Response:

The detail on 4/S105 should indicate a maximum height of soil of 3600.

93. Proponent Question:

Please confirm that cable/conduit and wire P1, P2, P3, P1A, P1B, P1C, P1D and Telus U/G conduits into the water treatment building are all outside of the electrical contractor's scope of work. If it is with-in the electrical contractors scope of work please provide conduit and wire/cable sizes.

Response:

- a. P1, P2, P3 conductors not currently in scope of work for Contractor. Contractor is responsible for coordinating with BC Hydro. BC Hydro will be the installer and supplier of P1, P2, P3 conductors, complete HV primary cable system and transformer. Reference E101 Note 12. Contractor responsible for supplying and installing P1, P2, P3 conduit. Contractor to assume 100mm DB2 Duct for each identified secondary conduit (three in total per the

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current design). BC Hydro will update requirements once final approvals are achieved. Current design does not show concrete encasement.

- b. Drawing E101 revised to remove reference to P1A, P1B, P1C, P1D, and correctly identify P1, P2 and P3.
- c. Telus U/G conduit will be the responsibility of the Contractor. Reference E101 Note 12; assume 53mm DB2 Duct from site boundary to electrical room.
- d. Coordinate city communication conduit extension detailed on C103, Construction note 2.

94. Proponent Question:

Please clarify/identify what conduit or cable feeding the waste pump control station as shown on drawing E101.

Response:

Drawing E101 has been revised to identify Cable S61 and the proper routing of this cable. Note that additional cables are required between the waste tank and the electrical room, not specifically shown on E101.

95. Proponent Question:

Please confirm location of P-400 VFD and P-401 VFD.

Response:

VFDs for P-400 and P-410 supplied by chemical dosing supplier. VFDs to be installed by the Contractor directly beside the dosing skid for P-400 and P-410, shown on E301, east wall, Process 2 area.

96. Proponent Question:

Drawing E301, grid lines 3 & C-B, there is a PLC cabinet shown. Please confirm if this is OSHG PLC or MCP-100. If this is MCP-100, please clarify the location of the OSHG PLC or vice-versa.

Response:

The location identified in the question references MCP-100. OSHG PLC cabinet supplied and installed on the NaOCl generator skid, and is located at the point identified by all other instrument bubbles for the NaOCl skid (interior east wall of Process 2 area).

97. Proponent Question:

Request for Wayne Dalton Rolling Steel as an alternative Rolling Steel Manufacture for this project.

Response:

Approved.

98. Proponent Question:

Can you provide a contact for Calgon?

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Response:

Refer to the response to Addendum No. 2, question #43.

99. Proponent Question:

Can Calgon's scope of work become a PC Sum?

Response:

Calgon will bill the Owner directly for their required attendance as such the Contractor should not carry any allowance for Calgon commissioning/site expenses.

100. Proponent Question:

It appears that existing grade elevations do not match existing elevations provided on the Civil drawings. As we do not have full access to the site at this time please confirm these elevations are accurate.

Response:

Existing conditions drawing has been provided in Addendum 3

101. Proponent Question:

It would appear the Caisson transitions from circular to square at an approximate elevation of 137. Will the Caisson be backfilled to approximate elevation of 142, or will 2 sides be left at 137?

Response:

Caisson will be backfilled to elevation 142.

102. Proponent Question:

Is there any intention to leave existing sediment control in place & handed over to the General Contractor? Including the sediment fence at lakes edge and the floating boom in lake.

Response:

Sediment fencing in place for current contract will be removed.

103. Proponent Question:

Please clarify if it is the intent to have the Preprufe 160r on the foundation wall along GL-A. This wall makes up part of the trench where this product is shown under slab and behind the walls on structural detail 2/S102. Architectural drawings appear to show the Procor product as the waterproof membrane along GL-A, please clarify which product is to be used on GL-A.

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Response:

Procor can be used for all foundation wall waterproofing as outlined in the spec. 07 14 00

104. Proponent Question:

It appears from the proponent questions in Addendum 2 that some Contractors are interpreting this as a Unit Price contract. My understanding was that Appendix 1A was presented for information only and bids are not to be based on the quantities provided as this is a Stipulated Sum contract. Please confirm which is correct.

Response:

This contract form is a CCDC 2 Stipulated Price contract. Tenderer is only required to submit completed Appendix 1 with tender submission.

Appendix 1A is required to be completed and submitted by the successful tenderer post award and will be used for processing progress claims.

105. Proponent Question:

Regarding ISO 9000 cert – requesting that SPFA (Steel Plate Fabricators Association) be allowed as a quality management program in lieu of, in addition to, ISO.

Response:

ISO 9000 shall be met.

106. Proponent Question:

Regarding B.C. Boiler Safety Welder Certificate – requesting that welders certified to perform work to ASME BPVC standards are acceptable in lieu of the Canadian standard.

Response:

ASME BPVC is acceptable

107. Proponent Question:

Regarding the No. 4 finish for the SST piping - is this to be on the ID, OD, or both?

Response:

Both.

108. Proponent Question:

Can the tender closing be extended so the radio supplier has time to quote?

1. Complete a line of site study
2. Engineer the wireless link
3. Confirm if a radio tower needs to be built for line of site, price if required
4. Complete Seismic study on the 911 tower

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5. Get BC Hydro approval for access to their tower

Response:

In regards to the closing date, refer to Addendum, Item 2 below.

1. A visual line of site was confirmed between the two locations with equipment detailed in specification 270513.
2. Supplier to price the work based on the information provided, including the requirement to engineer the specific link installations and implementation requirements.
3. Supplier to price work based on the information provided.
4. If the use of the 911 tower necessitates a seismic study, the supplier to price into the scope of work. The proponent will provide pricing for the work based the ability to install the equipment based on the information provided.
5. Supplier to price work based on the information provided. Project scope of work does not include modifications to communication equipment on the Hydro Surge Towers at this time. Please provide pricing based on the information contained within the documentation provided

109. Proponent Question:

Will the equipment on the surge towers be abandoned in place and left for demolition with the surge towers?

Response:

Project scope of work does not include modifications to communication equipment on the Hydro Surge Towers at this time. Please provide pricing based on the information contained within the documentation provided.

110. Proponent Question:

On drawing A101 in LAB 003 shows a door with a sidelight frame but this is not on the door schedule. What type of door and frames is this?

Response:

See question 75.

111. Proponent Question:

Drawing C103, item 2 appears to be a 75mm duct for communications. This doesn't show up on the electrical drawings. Please confirm if this is part of the electrical scope of work.

Response:

This is part of the electrical scope of work.

112. Proponent Question:

I cannot find BBH 4, 5 & 6 on electrical drawings. Please confirm location.

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Response:

BBH 4,5 and 6 are no longer part of the design. A future addendum will resolve this conflict in the drawings.

113. Proponent Question:

Please identify location point of electrical connection for crane motors 1, 2 & 3.

Response:

A future addendum will be submitted to identify the location of this tie point.

114. Proponent Question:

Please confirm location of that CP-501, CP-511 and future location of CP-521.

Response:

CP-501, CP-511 and future CP-521 to be installed against the dividing wall of the electrical/process area, on the process side of the wall.

115. Proponent Question:

Please confirm that UV-501 Panel, CP-501, UV-511 Panel & CP-511 are part of the existing, relocated ultra violet disinfection reactor system.

Response:

CP-501/511 and the relating UV reactors and instrumentation is part of the existing equipment being relocated. Cabling between the equipment to be replaced. Re-Commissioning of the equipment is included in the scope of the Contractor.

116. Proponent Question:

Cable schedule has identified a piece of equipment as LP-C. I cannot find this on the floor plan. Please clarify.

Response:

Question is not clear; if the reference is Panelboard C (LP-C), this panel distributed UPS power, and is located in the electrical room.

117. Proponent Question:

Please confirm location of LCP-901.

Response:

Reference C-103. LCP-901 located on the south side of the parking lot, near the utility transformer.

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118. Proponent Question:

Drawing E101 note 9 references drawing C303. Drawing C303 shows three 50mm RPVC conduits that are not shown on the electrical drawings. It also talks about the Sanitary Storage Tank being shipped to site loose and electrical work to be completed by contractor. The electrical drawings seem to indicate that the electrical contractors scope of work ends at JB-901. If there is any electrical work to be done between JB-901 and the P-901 please identify the electrical scope of work along with the three 50mm conduits in question

Response:

The contractor is responsible for wiring, testing and commissioning the electrical and controls portion of the sanitary storage tank. Reference the cable schedule, single line diagram, control panel drawings and C303 to provide a functional system.

119. Proponent Question:

Request for American Specialties Inc. as an alternative for washroom accessories..

Response:

Provided in spec 102810

120. Proponent Question:

Can Simson-Maxwell be added to the list of approved suppliers for the generator/e-house/switchgear supply (263213.2.12.1)?

Response:

Yes, but the Contractor must provide a unit which works within the current design spatial limits set out on the drawings.

121. Proponent Question:

The actuator is on P&ID number P009 and has tag FCV-604. Do you know what valve this actuator is being put on, have any information about it or have the actuator spec? We will need to know this to size the actuator. I'm assuming they will want this actuator to be the same as the other assembly (tag FCV-501).

Response:

Electrical spec for actuator provided for the valve FCV-604. The valve is shown, as he mentioned on drawings P009 and is provided by the city. This actuator is not related to valve FCV-501 which is supplied with actuator as a part of UV relocation package.

122. Proponent Question:

Specification is calling for an odour control unit with fan in an aluminum enclosure – is there any more information on this odour control unit? The only odour control unit our supplier uses is the FRP unit without a fan.

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Response:

Will be responded to in Addendum 4.

123. Proponent Question:

Please provide the Valve Spec No. for BFV-811, FCV-820 and FCV-830 in the Process Valve list, Section 40 06 23.

Response:

Specification section is now updated. These valves will be provided by the supplier of the compressed air system and as such do not require our specification table.

124. Proponent Question:

Trolley cranes and beams are shown on the plan drawings – are these included in this tender? Please provide specification if required.

Response:

Question received and will be responded to in Addendum No. 4

125. Proponent Question:

On drawing A101 in LAB 003 shows a door with a sidelight frame but this is not on the door schedule. What type of door and frames is this?

Response:

See question 75.

126. Proponent Question:

Door type D2 is referenced as a solid wood core door on the door schedule (DWG 15-508-A002), the specifications only refer to metal doors and frames (081113) and overhead coil (08330). Are there specifications related to wood doors and frames?

Response:

Door construction:
39mm LVL (laminated veneer lumber) core
3mm veneer plywood to each side
Solid 16mm KD vertical grain cedar
#1 T edge
Polyurethane glue

Supplier: Delta Door"

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127. Proponent Question:

With reference to Drawing C102 and Sections A,B,C/C104 it appears existing ground as drawn is considerably higher than what we are seeing in the field. It is our understanding the contractor currently working at the site has taken the grade down to approximately elevation 142.0 in some areas but not the entire building envelope. Can we get a plan or sections that show where the site subgrade will be at commencement of this contract.

Response:

Existing conditions drawing has been provided in Addendum 3

128. Proponent Question:

The detail for the flow meter chambers on C304 shows mechanical couplings and restraint on each side of the chambers. The distance from the chamber to adjacent fittings (tees and bends) is close enough that we can provide continuous piping flange to flange without the couplings and restraints. Would this be acceptable?

Response:

Couplings and restraints should be provided as shown on the drawings.

129. Proponent Question:

The detail on C302 for the blowdown shows 300mm pipe and 200mm gates and check valve. Please clarify.

Response:

Drawing has been updated to reflect 300mm valves

130. Proponent Question:

What is the depth / floor elevation for the blowdown?

Response:

Drawing has been updated to reflect 1.0m (MIN) cover

131. Proponent Question:

The blowdown inlet pipe calls for a SS thrust ring welded to the schedule 40 pipe. Is the pipe to be SS or can the thrust ring be carbon steel?

Response:

Stainless steel.

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132. Proponent Question:

Would request for alternate for Air Bloc 31 – Section 07 27 10.

Response:

Approved.

133. Proponent Question:

Since the final tie-ins at the existing John Hart Water Quality Centre will take place after the new plant has been fully commissioned, please confirm the tie-ins will be excluded from the determination of substantial completion.

Response:

The work connecting the new watermain to the existing 500 Steel watermain is required to be complete by Substantial Completion so as to be able to facilitate the operation of the entire new system during the commissioning phase. The tie in to the existing 760 steel watermain and existing 250 PVC watermain can occur after Substantial Performance.

**Addendum Item 2
Tender Closing Date Revision**

Change Tender closing date from “Friday October 7th, 2016” and replace with “**Thursday October 20th, 2016**”.

**Addendum Item 3
Delete and Replace Supplementary Specification Construction Schedule & Progress Reports
Section 01 31 00, 1.3.2 Schedules**

Delete Section 1.3.2 and replace as follows:

Show completion time and all specific dates and sequencing requirements. Identify activities making up the critical path. Schedule to include the following milestones:

Construction anticipated to commence No later than: November 30th, 2016
Substantial Performance of Contract to be achieved on or before: December 31st, 2017

**Addendum Item 4
Revise Section 27 05 13, Section 1.1.4**

Revise Section 27 05 13, Clause 1.1.4 to read: “The contractor will be responsible for engaging North Island Communications, Victoria Mobile Radio or another communications supplier familiar with the radio communication network used by the City of Campbell River to provide the following:”. All other sub clauses below 1.1.4 to remain unchanged.”

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**Addendum Item 5
Add Section 26 05 63 Motor & Valve Actuators**

Add Section 26 05 63 Motor and Valve Actuators as attached to Tender package.

End of Addendum

Acknowledgement of this Addendum in your Tender submission is required.

Clinton J. Crook, SCMP, CPSM
Senior Buyer

Appendix 1A

(Revised September 30th, 2016)

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
	<u>01 - General Requirements</u>				
	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		
	<u>Environmental Protection</u>				
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	
	<u>03 - Concrete</u>				
03.1	Concrete	1	LS		
03.2	Reinforcement	1	LS		

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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		

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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				
A3	Surge tank - 10.2 m diam glass 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		

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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	
<u>07 - Thermal and Moisture</u>					
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	
<u>08 - Doors and Windows</u>					
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	
<u>09 - Finishes</u>					
09.1	Drywall	1	LS		

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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	
	<u>10 - Specialities</u>				
10.1	Toilet and Bath Accessories	1	LS		
				Division 10 Specialities – Sub Total	
	<u>21 – Fire Suppression</u>				
21.1	Fire suppression equipment	1	LS		
				Division 21 Fire Suppression – Sub Total	
	<u>22 - Plumbing</u>				
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	

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

<u>23 - HVAC</u>					
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	
<u>25 - Integrated Instrumentation</u>					
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	
<u>26 - Electrical</u>					
26.1	Job start up	1	LS		
26.2	Conduit and wiring	1	LS		
26.3	Feeders and grounding	1	LS		

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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	
	<u>27 - Communications</u>				
27.1	Communication systems; complete	1	LS		
				Division 27 Communications - Sub Total	
	<u>31 - Earthworks</u>				
31.1	Site grading	1	LS		
31.2	Excavating for ditches and swales	1	LS		
31.3	Topsoil and finish grading	1	LS		

Tenderer's Initial	Owner's Initial

**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

31.4	Riprap	1	LS	Division 31 Earthwork - Sub Total	
32 - Exterior Improvements					
<u>Treatment Plant</u>					
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		
<u>Pipeline</u>					
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	

Tenderer's Initial	Owner's Initial
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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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		

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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	4	ea	
33-19	Reducer - 900F x 760W	4	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	
A3	Ultrasonic flowmeter; 250 mm diam.	1	ea	
A3	Ultrasonic flowmeter; 500 mm diam.	1	ea	

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

A3	Ultrasonic flowmeter; 760 mm diam.	1	ea		
	<u>Tie-Ins</u>				
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		
	<u>Pipe Culverts</u>				
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		
	<u>Waterworks - Surge Tank & Valve Chamber</u>	 	 		
A3	PVC C900 DR18 200 mm; all depths	40	m		
A3	Welded steel pipe - 900 mm diam 6.4 mm thick wall; all depths	28	m		

Tenderer's Initial Owner's Initial

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

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		
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		
A3	Gate valve - 200 H x H	1	ea		
A3	Gate valve - 900 F x F - free issue by Owner	3	ea		
A3	Dismantling joints - 900 mm diam.	3	ea		
	Tie-Ins	1	1		
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 –	

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**CITY OF CAMPBELL RIVER
TENDER 16-20
WATER TREATMENT BUILDING
FORM OF TENDER**

Division 44 – Pollution Control Equipment	1	LS		
Division 46 - Water and Wastewater Equipment	1	LS		
				Sub-Total:
				\$
				GST (5%):
				\$
				Total:
				\$

Tenderer's Initial Owner's Initial

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PART 1 GENERAL

1.1 ACCEPTABLE SUPPLIERS

- .1 EMI model TEC2000,
- .2 Rotork model IQTM

1.2 PRODUCT DATA

- .1 Submit product data in accordance with Submittal Procedures.
- .2 Submit product data sheets for motors. Include product characteristics, performance criteria, physical size, horsepower, watt rating, limitations and finish.
- .3 Manufacturer's Instructions: Provide to indicate special handling criteria, installation sequence, cleaning and lubrication procedures.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Submittal Procedures.
- .2 Indicate:
 - .1 Overall dimensions of motor.
 - .2 Shaft centreline to base dimension.
 - .3 Shaft extension diameter and keyway, coupling dimensions and details.
 - .4 Fixing support dimensions.
 - .5 Dimensioned position of ventilation openings. Details of ventilation duct attachments.
 - .6 Terminal box location and size of terminals.
 - .7 Arrangement and dimensions of accessories.
 - .8 Diagram of connections.
 - .9 Starting current and relative data necessary for use in design of motor starting equipment.
 - .10 Speed/torque characteristic.
 - .11 Weight.
 - .12 Installation data.

1.4 SUBMITTALS

- .1 Shop Drawings: Submit with the related items of equipment in accordance with Submittal Procedures and Electrical General Requirements.
- .2 Provide operation and maintenance data for motors and valve actuators for incorporation into manual specified

PART 2 PRODUCTS

2.1 MATERIALS

- .1 All 3 phase motors to be class F insulation with class B rise, 1.15 SF, high efficiency and high power factor.
- .2 Motors 37 kW and smaller to be equipped with thermal winding temperature switches wired to separate terminal box unless otherwise specified.
- .3 Motors 45 to 93 kW to be equipped with thermistor winding temperature detectors wired to separate terminal box unless otherwise specified.
- .4 Motors 112 kW and larger to be equipped with 100 Ohm platinum RTD winding temperature detectors wired to separate terminal box unless otherwise specified.
- .5 Motor enclosures to be ODP unless otherwise indicated.
- .6 Two speed motors shall be two winding design.
- .7 Motors powered by AC Variable Speed Drives (Inverter Grade)
 - .1 Motors will be designed for use on generic PWM waveform to meet NEMA MG1, Part 31, Section 31.40.4.2.
 - .2 Motors shall be capable of operating a variable torque load over a 5:1 speed range.
 - .3 Motors will be marked to CSA C22.2 No. 100-95 clause 12.4 and have in addition to the normal motor marking:
 - .1 motor application (e.g. Inverter-duty);
 - .2 speed range over which the machine is designed to operate;
 - .3 type of torque application for which the machine is designed e.g. VT (variable torque), CT (constant torque), CHp (constant horsepower) or equivalent;
 - .4 type of inverter it is designed for e.g. PWM (pulse width modulated)

2.2 MOTORIZED ACTUATORS FOR VALVES

- .1 General
 - .1 Provide motor actuators including the motor, power gearing, torque switches and auxiliary handwheel or chain-operated handwheel, as a self-contained unit for the motor operated valves as shown on the drawings.
 - .2 Power gearing enclosures shall be of cast aluminum and gears shall run in oil or grease. Fill and drain plugs shall be provided for oil and bottom head lubrication fittings for grease.
 - .3 Operator shall be furnished with handwheel or chain-operated handwheel for emergency manual operation. The handwheel shall not rotate when motor is energized. Motor rotor shall not rotate when handwheel is in use.
 - .4 The handwheel shall engage by means of an automatic declutching device. Handwheels shall not require more than 180 N pull at the rim to operate.

- .5 Electric motors shall be CSA approved, totally enclosed, non-ventilated with Class B insulation and windings specially impregnated to prevent moisture absorption. Motors shall operate on 3 phase, 60 Hz power and shall be capable of 1200 starts per hour on modulating duty.
- .6 A thermal protector, CGE Thermo-Tector or approved alternative shall be embedded in the windings to stop the motor on over-heating. The motor shall be de-energized in the event of a stall.
- .7 Provide limit switches for each valve for transmitting valve open-close status.
- .8 Motorized actuators shall in addition to the above requirements have the following characteristics and appurtenances:
 - .1 Monitor relay to indicate phase loss, control supply loss, valve switch not in auto, thermostat trip,
 - .2 Have 4 train limit switches,
 - .3 Have CSA Type 4X enclosure,
 - .4 Have integral solid state starter for modulating duty c/w open/stop/close push button and hand/auto selector switch,
 - .5 Have a locally mounted valve position indicator,
 - .6 Have mechanical operator and disengaging clutch.
 - .7 Have 4-20 ma analog position control.
 - .8 Have 4-20 ma analog position feedback
- .9 Actuator must have ability to stop instantly without overshoot.
- .10 Actuator must have high degree of positioning precision and accuracy (0.5% or better).
- .11 The actuator shall be provided to develop the maximum torques indicated in AWWA C504-87. Where torque requirements are based on operating conditions, operators shall be selected on the basis of the required torque for such conditions times the following service factors:
 - .1 Dynamic torque - A factor of 1.5 shall be used when considering the dynamic torque in the calculation of the opening torque.
 - .2 Seating Torque - A factor of 1.25 shall be used when calculating the seating torque.
 - .3 For modulating duty starting torque to be, at least 80% of pullout torque.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Confirm coordination required, final connections, loads and locations of motors, prior to installation.
- .2 Motors for mechanical equipment supplied and installed by that trade. Location of motors, conduit and connection points shown for equipment supplied by the mechanical trade are for estimating purposes only.
- .3 Provide line voltage connections for all mechanical equipment.

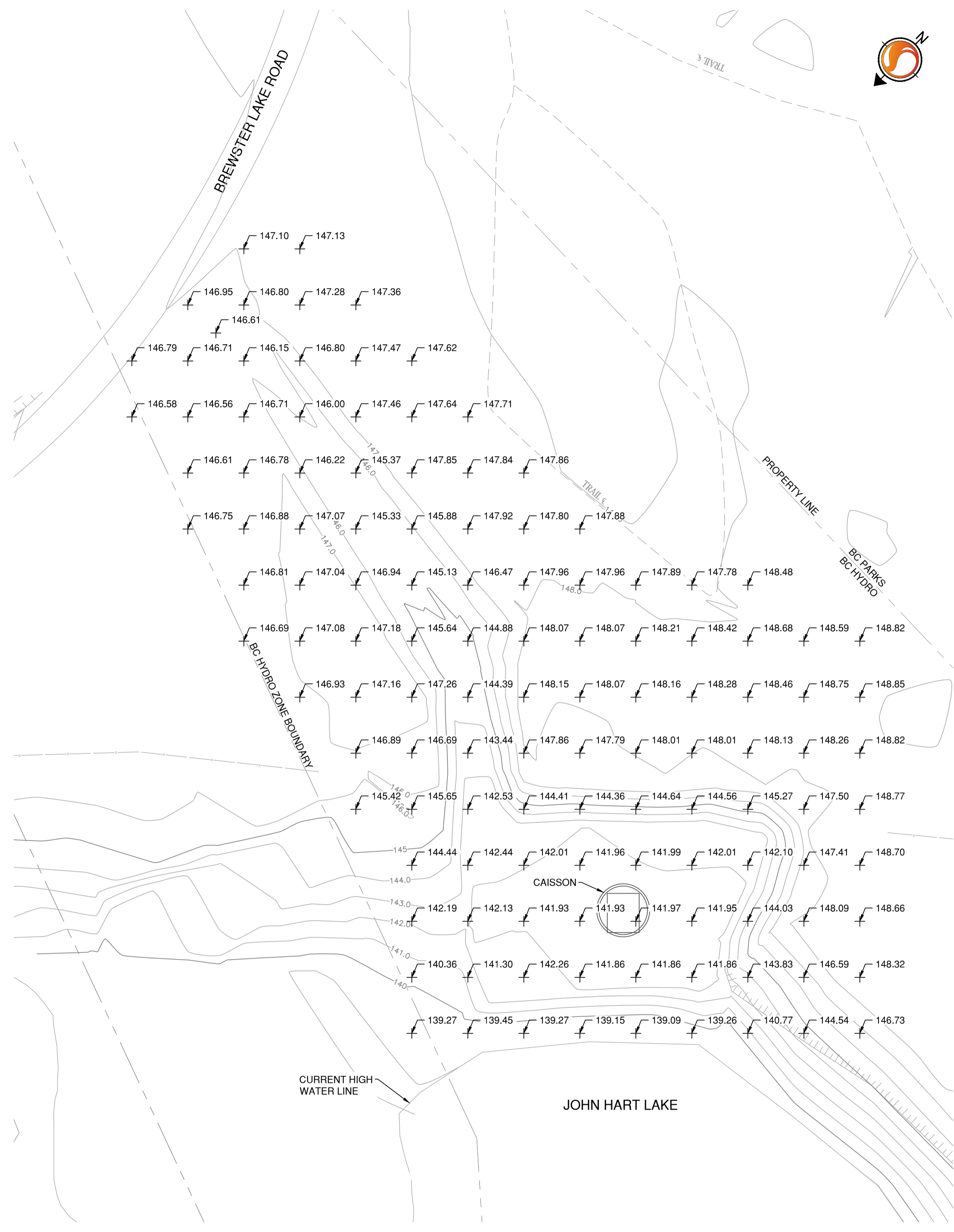
- .4 Use liquid tight flex for all motor connections from conduit systems.
- .5 Confirm proper nameplate markings before hooking up motors intended for use with AC variable speed drive.

3.2 SCHEDULE OF VALVE ACTUATORS

- .1 The supply and installation of valves is specified in other divisions.
- .2 The supply of valve actuators is specified in the work of this Division and should be coordinated with other sub-trades.
- .3 Startup, commissioning and adjustment of valve actuators in accordance with the manufacturer's recommendations.

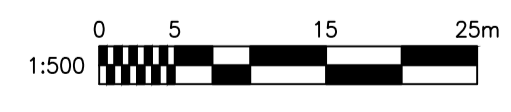
END OF SECTION

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PLAN
SCALE: 1:500

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NO.	REVISION/ISSUE	APP'D BY	DATE	CONST'D BY	DATE
1	ADDENDUM 3	AG	16/09/30		

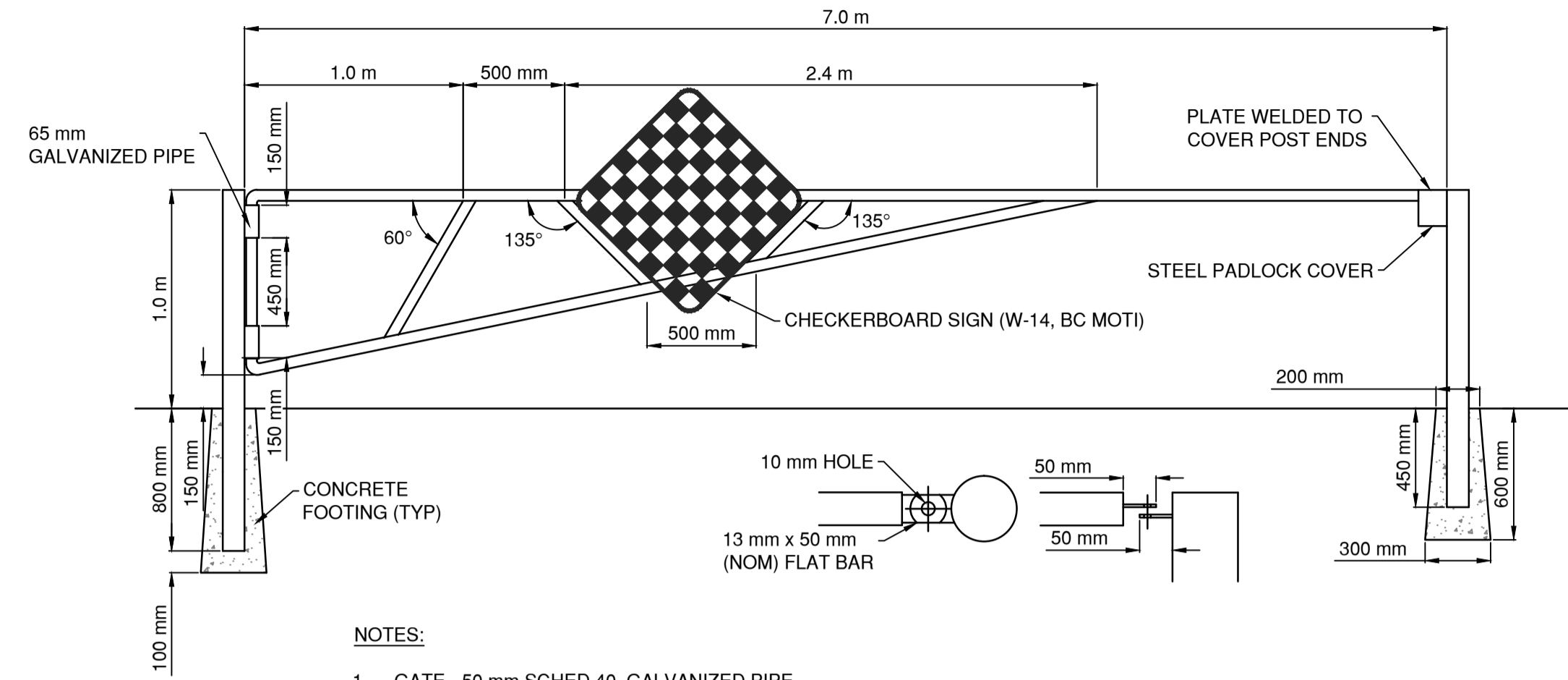
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APPROVED:	AG	DATE:	16/09/30



Stantec
400-655 Yee Road
Victoria, BC V9A 6X5
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TITLE:	PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2 EXISTING CONDITIONS	DRAWING NO.	15-508- C100
		PROJECT:	112311316
		REV.	1

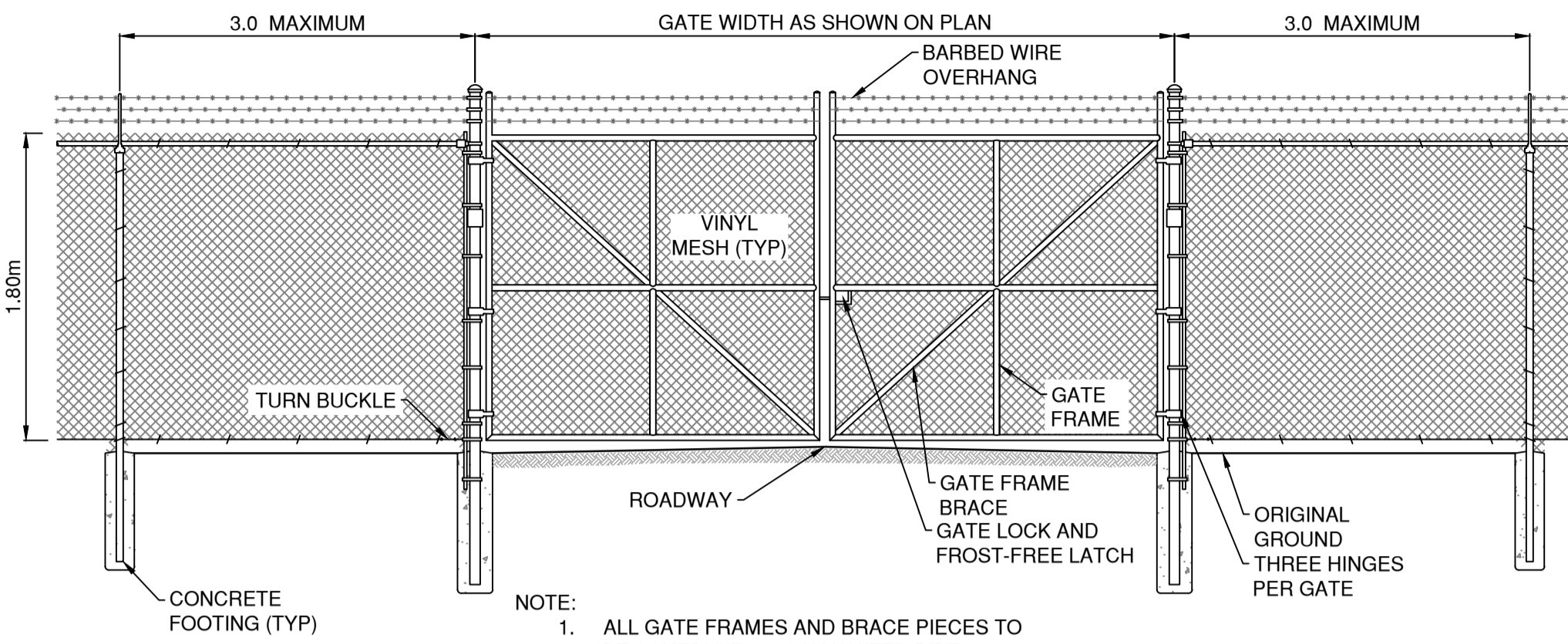
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DESTROY PRINTS OF PREVIOUS REVISION



NOTES:

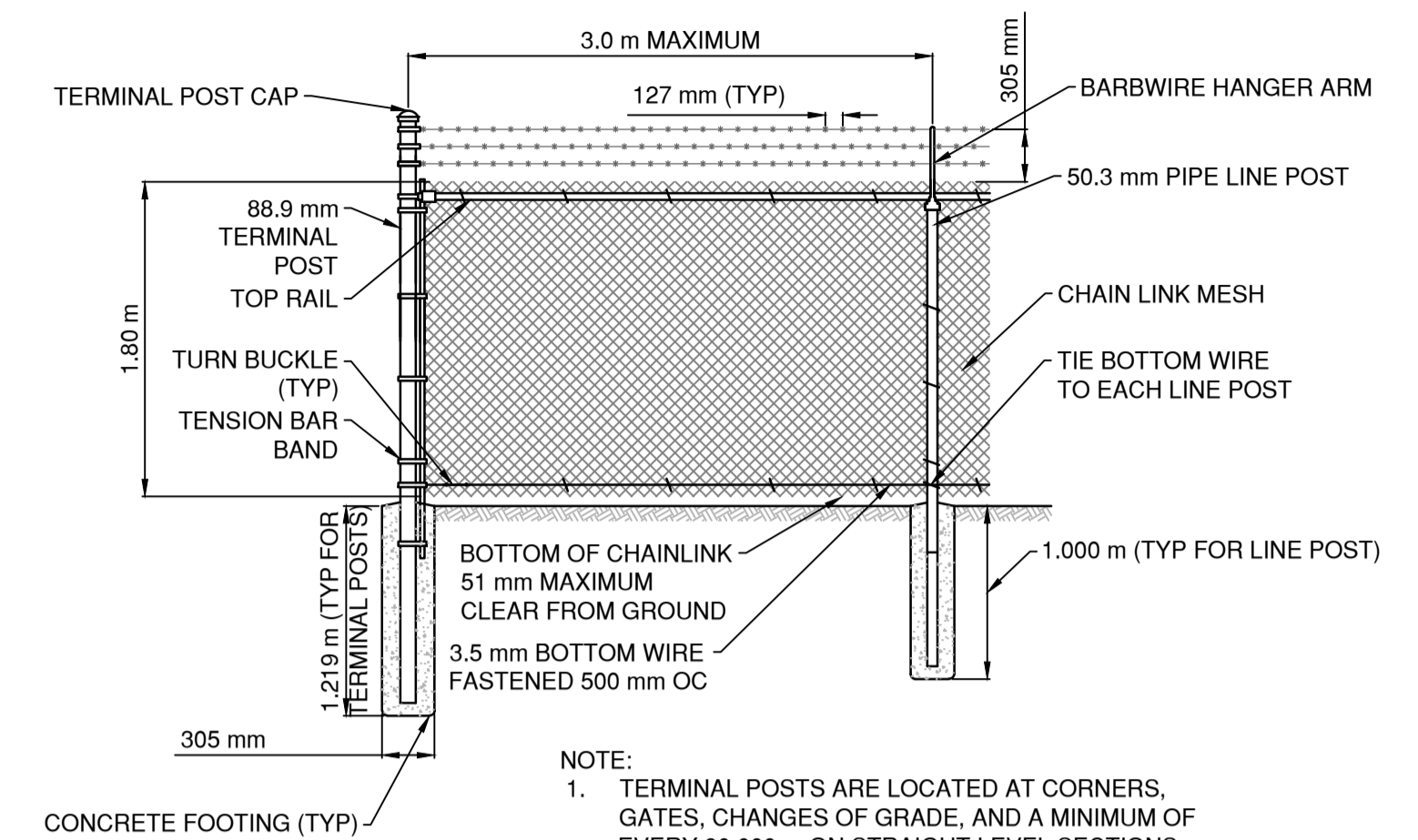
- GATE - 50 mm SCHED 40 GALVANIZED PIPE
- POSTS - 100 mm SCHED 40 GALVANIZED PIPE
- WELDS TO BE TREATED WITH GALVACON OR EQUIVALENT
- GATE TO SWING 180° MINIMUM

1 ACCESS BARRIER GATE DETAIL
SCALE: NTS



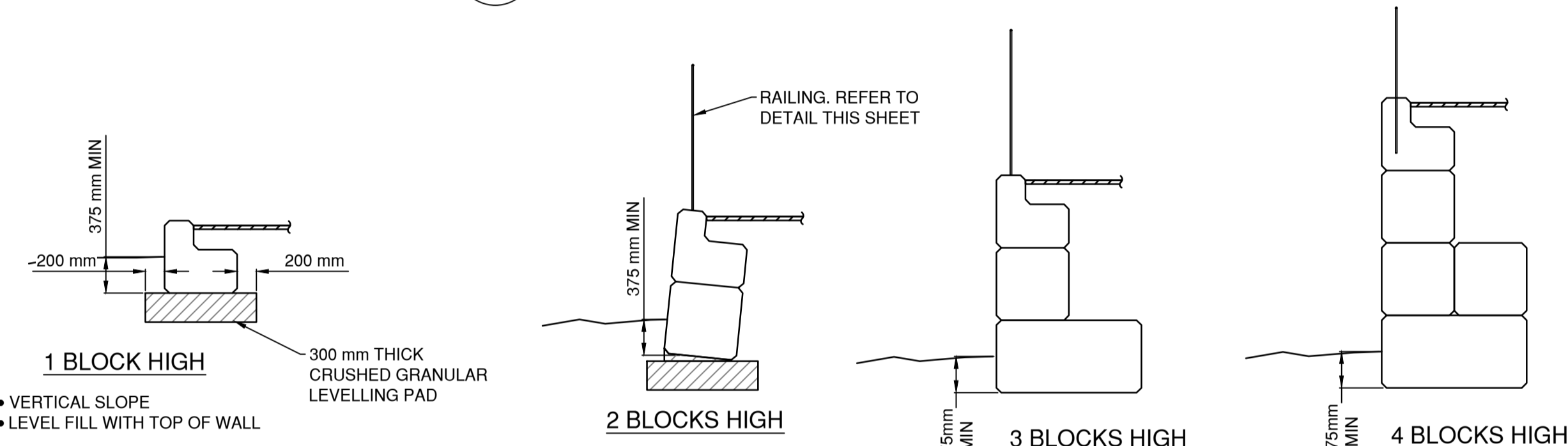
- NOTE:**
- ALL GATE FRAMES AND BRACE PIECES TO BE SCHEDULE 40 GALVANIZED PIPE.
 - GATE LOCK TO BE FITTED WITH STEEL BARREL SHROUD

2 SECURITY GATE DETAIL
SCALE: NTS



- NOTE:**
- TERMINAL POSTS ARE LOCATED AT CORNERS, GATES, CHANGES OF GRADE, AND A MINIMUM OF EVERY 90.000 m ON STRAIGHT LEVEL SECTIONS.

3 CHAINLINK FENCE PANEL DETAIL
SCALE: NTS



- VERTICAL SLOPE
- LEVEL FILL WITH TOP OF WALL

2 BLOCKS HIGH

- 1H:10V WALL SLOPE
- LEVEL FILL WITH TOP OF WALL
- 1.2 m HIGH RAILING

3 BLOCKS HIGH

- VERTICAL SLOPE
- LEVEL FILL WITH TOP OF WALL
- 1.2 m HIGH RAILING
- LOWEST COURSE OF BLOCKS IS TURNED PERPENDICULAR TO THE WALL FACE

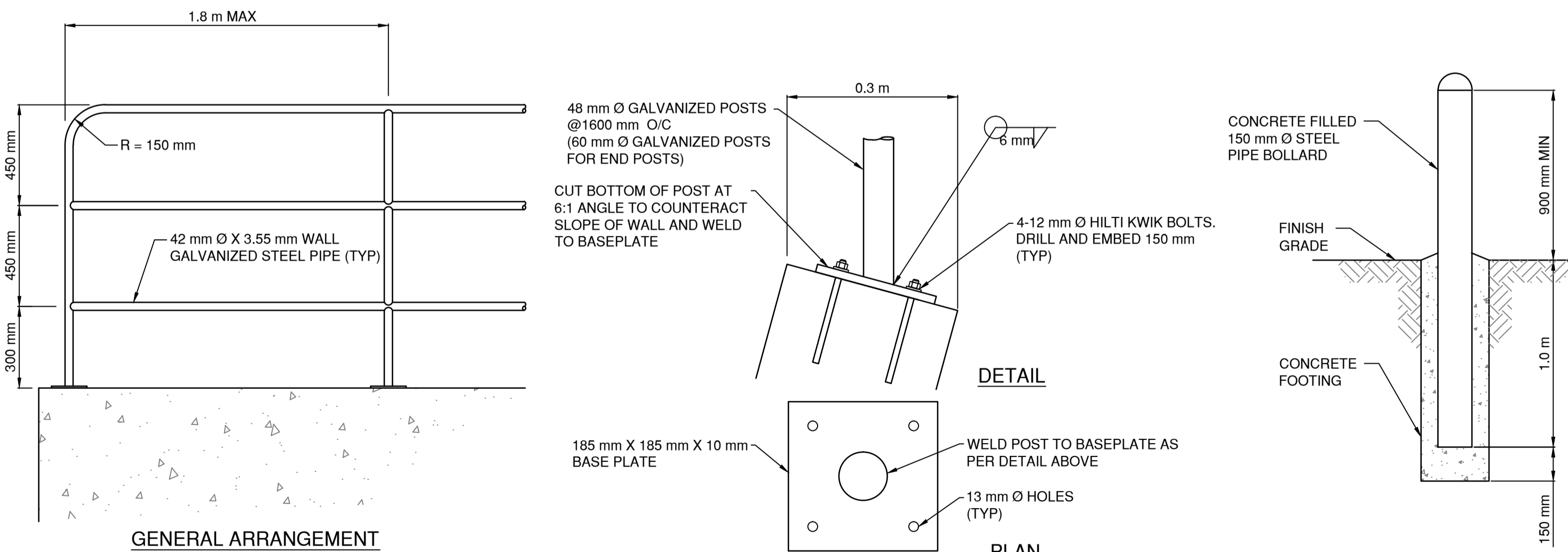
4 BLOCKS HIGH

- VERTICAL SLOPE
- LEVEL FILL WITH TOP OF WALL
- 1.2 m HIGH RAILING
- LOWEST COURSE OF BLOCKS IS TURNED PERPENDICULAR TO THE WALL FACE
- ADDITIONAL BLOCK REQUIRED ON TOP OF THE IN TURNED ROW

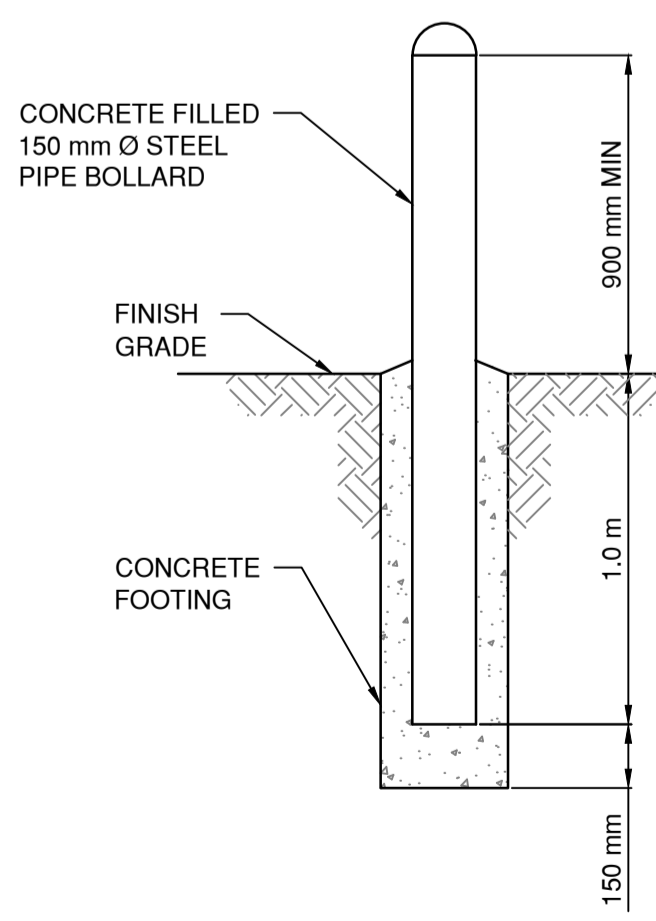
CONCRETE BLOCK SPECIFICATIONS

- DIMENSIONS: 750 mm X 750 mm X 1500 mm
- FACE: 1.125 sq.m
- MIN RADIUS FOR VERTICAL CURVES: 23 m
- LIFTING LOOP MIN BREAKING STRENGTH: 15,900 kg
- CONCRETE STRENGTH: MIN 20 MPa AFTER 28 DAYS (VERIFIED)

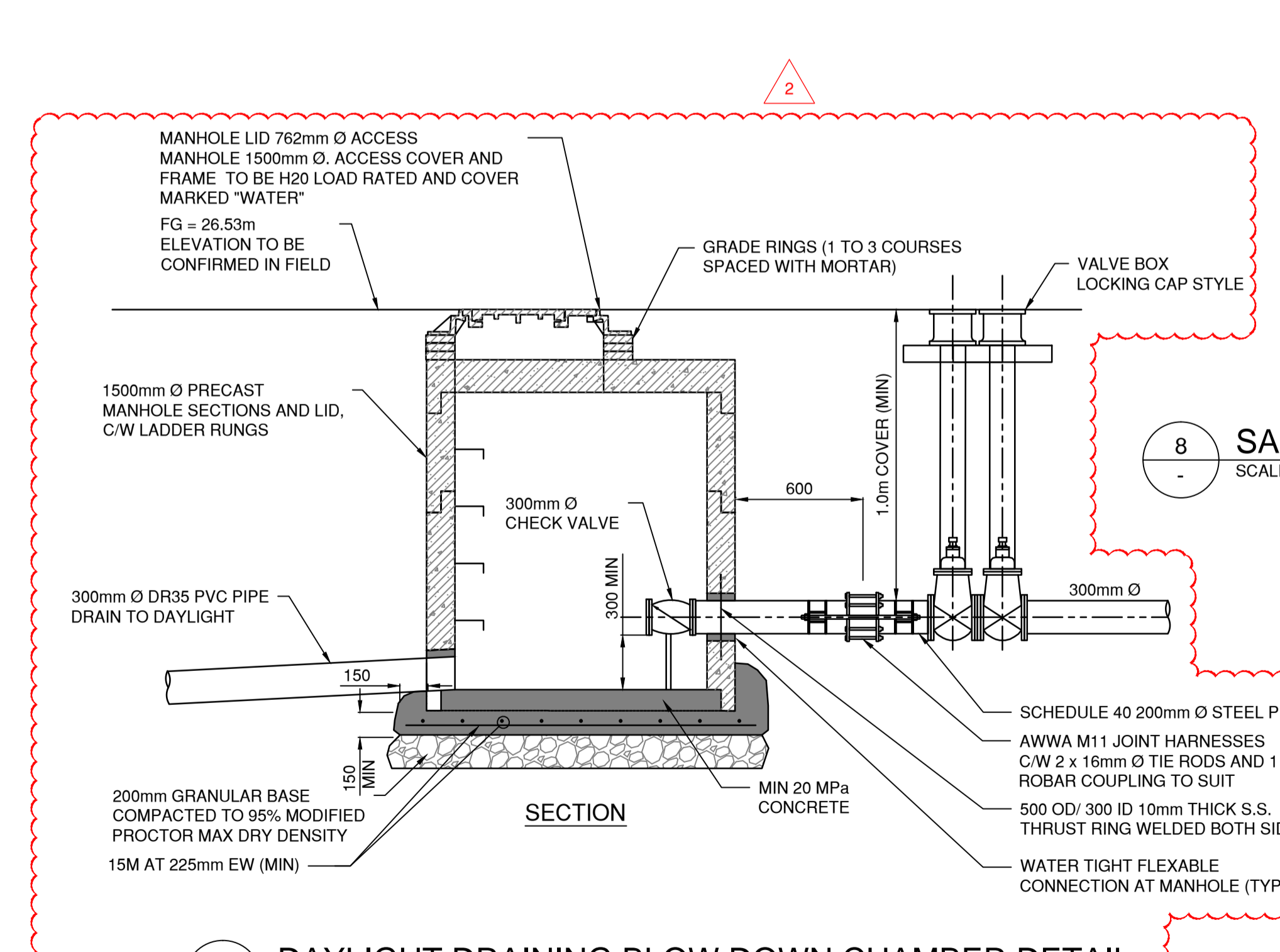
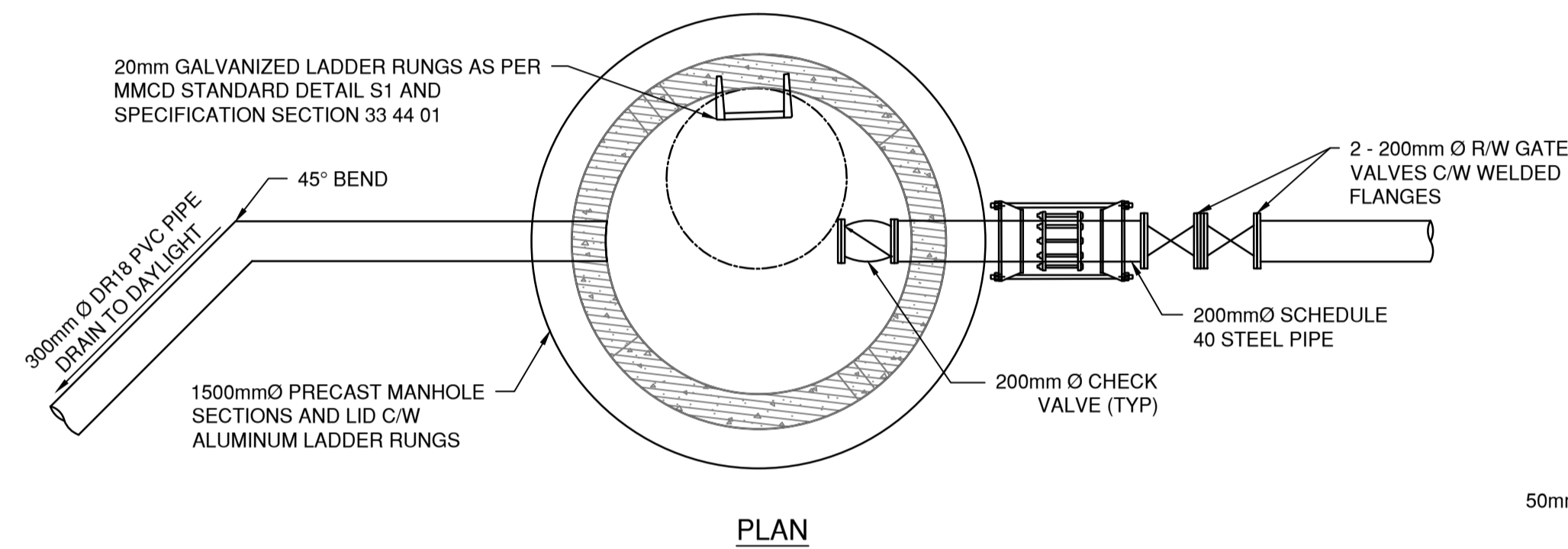
4 LOCK BLOCK WALL INSTALLATION DETAILS
SCALE: NTS



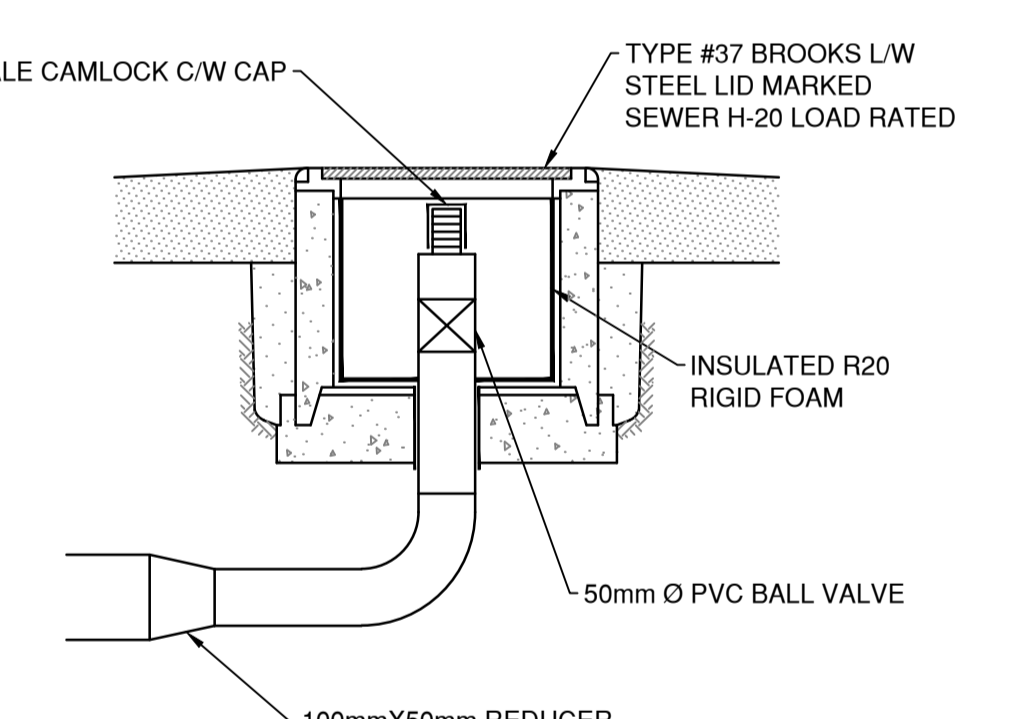
5 BLOCK WALL FENCE AND BASE PLATE DETAIL
SCALE: NTS



6 BOLLARD DETAIL
SCALE: NTS



7 DAYLIGHT DRAINING BLOW DOWN CHAMBER DETAIL
SCALE: NTS



8 SANITARY PUMP OUT CONNECTION DETAIL
SCALE: NTS

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DRAWING PATH: V:\123\active\1231316\Drawings\Current\pump_station\station\1231316_C301.dwg Tab C302 Sep 29, 2016 3:00:35pm

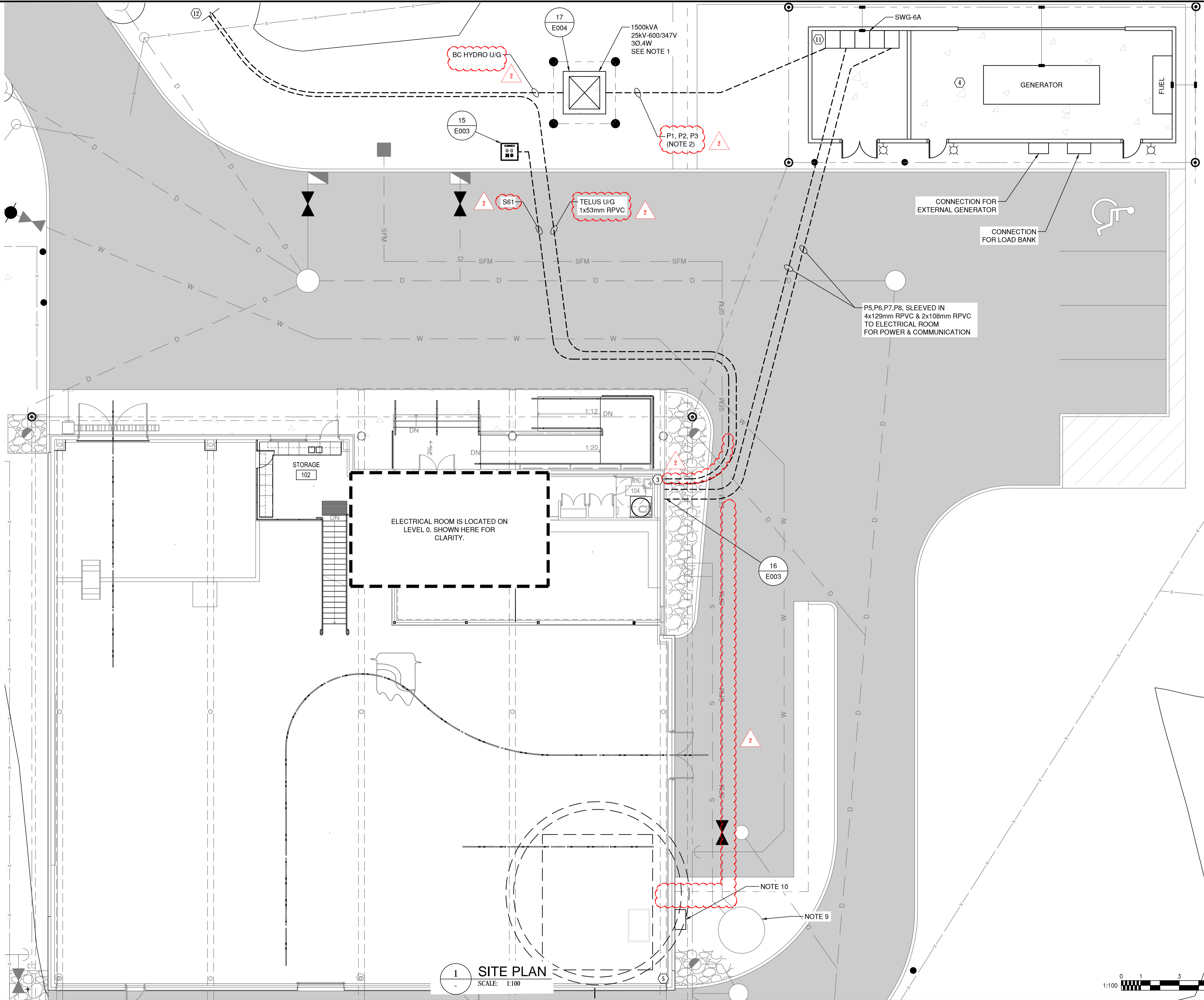
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2	ADDENDUM 3	AC	16/09/30		
1	ISSUED FOR TENDER	AG	16/09/02		

DESIGNED: SS	SCALE: AS NOTED
DRAWN: OB	DATE: 16/09/30
CHECKED: AG	DATE: 16/09/30
APPROVED: AG	DATE: 16/09/30

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	DRAWING NO. 15-508- C302
CIVIL DETAILS	PROJECT: 11231316
	REV. 2

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- KEY NOTES:**
- 1 PROPOSED LOCATION OF BC HYDRO SERVICE TRANSFORMER, EXACT LOCATION TO BE CONFIRMED.
 - 2 ALL CABLE ROUTING IS PROPOSED, EXACT LOCATIONS TO BE CONFIRMED.
 - 3 CONDUIT ENTRY INTO LEVEL 0.
 - 4 REFERENCE SPECIFICATION 263213. GENERATOR, SWG-6A, ENCLOSURE TO BE SUPPLIED AND INSTALLED AS A SINGLE PACKAGE.
 - 5 COMMUNICATION EQUIPMENT, INCLUDING 3.65GHz RADIO AND CELLPHONE BOOSTER. REFERENCE COMMUNICATION SPECIFICATION.
 - 6 BUILDING AND POWER STATION PERIMETER GROUND GRID TO CONSIST OF A MINIMUM OF FOUR 19mmØ, 3000mm GROUND RODS AND TEST STATIONS EACH, CONNECTED TOGETHER WITH #2/0 Cu. GROUND CONDUCTOR.
 - 7 INSTALL PERIMETER GROUND LOOP A MINIMUM OF 800mm BELOW FINISHED GRADE AND 915mm AWAY FROM BUILDING FOOTING.
 - 8 GROUNDING INSTALLATION SHALL MEET ALL REQUIREMENTS OF THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE.
 - 9 REFERENCE DRAWING C303, WIRING FOR PUMP, LEVEL FLOAT AND LEVEL TRANSMITTER BACK TO ELECTRICAL ROOM, P-901.
 - 10 TERMINATION JUNCTION BOX FOR ELECTRICAL POWER AND CONTROL WIRING, JB-901.
 - 11 BC HYDRO INCOMING AND METER LOCATED IN SWG-6A.
 - 12 COORDINATE TIE-POINT FOR BC HYDRO (REF 3947754) AND TELUS FOR SCOPE OF CONTRACTOR.

ELECTRICAL ROOM IS LOCATED ON LEVEL 0. SHOWN HERE FOR CLARITY.

1 SITE PLAN
SCALE: 1:100



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2	ADDENDUM 3	SL	16/09/30		
1	ISSUED FOR TENDER	SL	16/09/02		

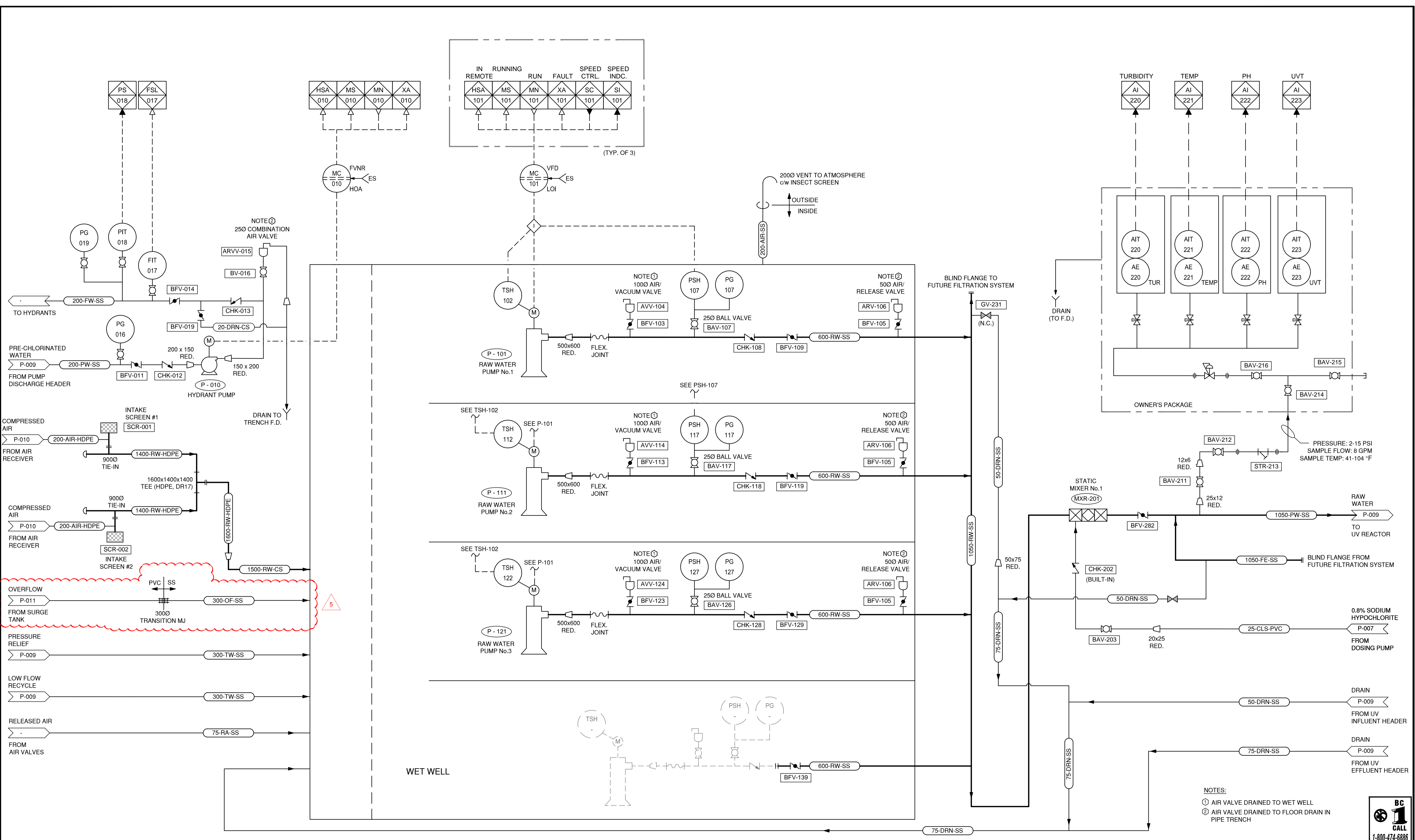
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CHECKED: SL	DATE: 16/09/30
APPROVED: SL	DATE: 16/09/30

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TITLE:	PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2
DRAWING NO.	15-508- E101
PROJECT:	112311316
REV.	2

DRAWING PATH: W:\1123\active\112311316\Drawings\current\pump_station\electrical\112316_E101.dwg Tab: E101 Sep 29, 2016 3:51:58pm
DESTROY PRINTS OF PREVIOUS REVISION

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INTAKE SCREEN:
 NUMBER: 2
 EQUIPMENT TAG: SCR-001 & 002
 CAPACITY: 68 MLD / EACH

HYDRANT PUMP:
 NUMBER: 2 (1 SHLF SPARE)
 EQUIPMENT TAG: P-010
 CAPACITY: 45 L/s @ 14.5 mH₂O TDH
 POWER: 15 Hp

RAW WATER PUMP:
 NUMBER: 3
 EQUIPMENT TAG: P-101A, 111A, 121A
 CAPACITY: 46 MLD @ 35 mH₂O TDH (EACH)
 POWER: 300 Hp

- NOTES:**
- ① AIR VALVE DRAINED TO WET WELL
 - ② AIR VALVE DRAINED TO FLOOR DRAIN IN PIPE TRENCH



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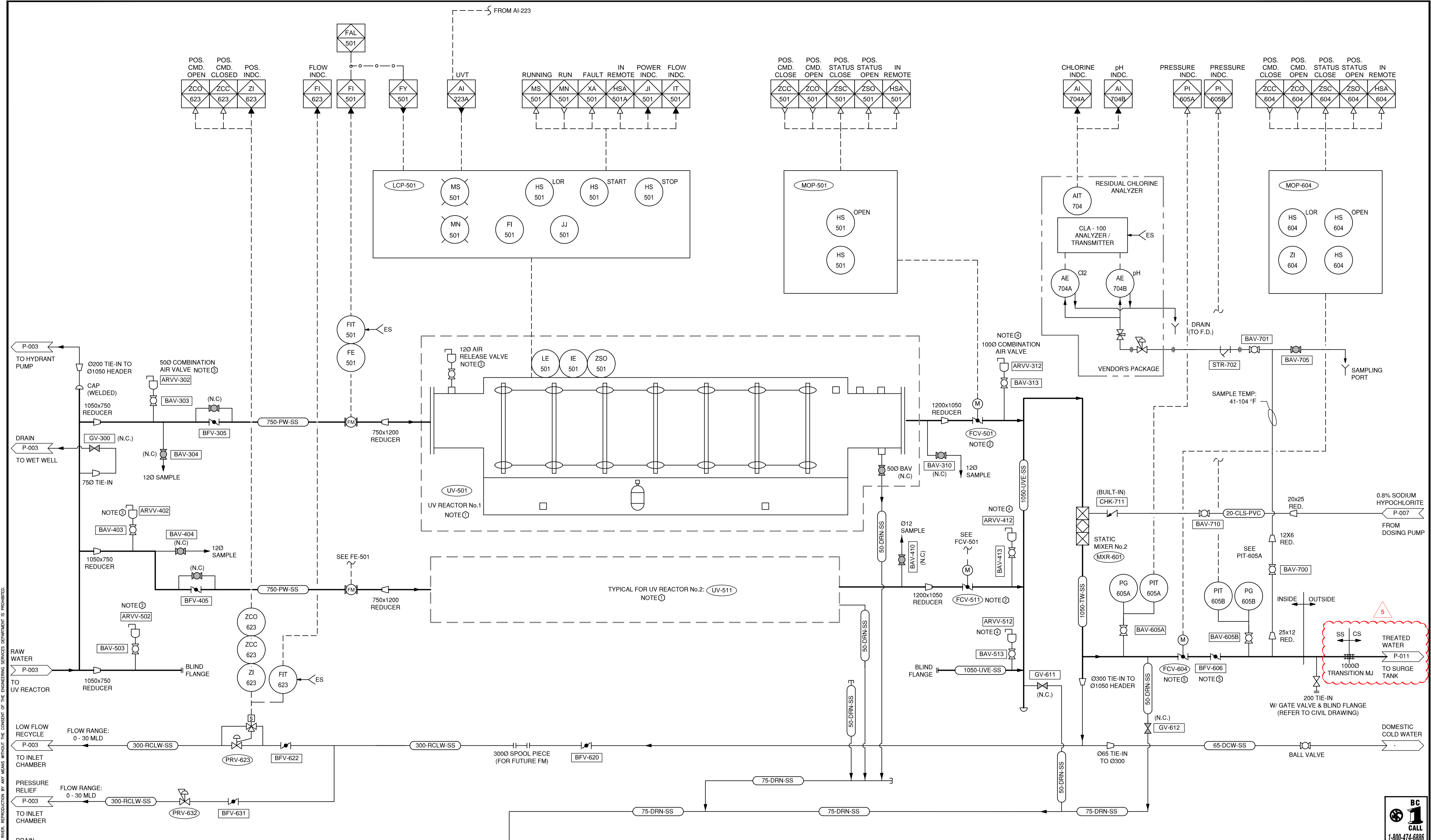
NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTD BY	DATE
5	ADDENDUM 3	BP	16/09/30		
4	ISSUED FOR TENDER	BP	16/09/02		
3	ISSUED FOR FINAL REVIEW	BP	16/08/12		
2	ISSUED FOR 90% SUBMISSION	BP	16/04/18		
1	ISSUED FOR 50% SUBMISSION	BP	15/10/27		

DESIGNED: BP	SCALE: N.T.S.
DRAWN: BZ	DATE: 16/09/30
CHECKED: BP	DATE: 16/09/30
APPROVED: BP	DATE: 16/09/30

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	DRAWING NO. 15-508- P003
PROCESS & INSTRUMENTATION DIAGRAM RAW WATER PUMP STATION	PROJECT: 112311316
	REV. 5

DRAWING PATH: \\CD1208-F04\workgroup\112311316\112311316_V-drawings\current\pump_station\process\112311316_P003.dwg Tab: P003 Sep 29, 2016 6:16:43pm DESTROY PRINTS OF PREVIOUS REVISION



UV REACTORS:
 NUMBER: 2
 EQUIPMENT TAG: UV-501, 511
 CAPACITY: 92 MLD (EACH)
 POWER: 160 Hp

- NOTES:
 ① EXISTING UV REACTORS, RELOCATED.
 ② EXISTING MOTORIZED BUTTERFLY VALVES, RELOCATED.
 ③ AIR VALVE DRAINED TO WET WELL.
 ④ AIR VALVE DRAINED TO FLOOR DRAIN IN PIPE TRENCH.
 ⑤ EXISTING BUTTERFLY VALVE, RELOCATED.

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NO.	REVISION/ISSUE	APP'D BY	DATE	CONST'D BY	DATE
5	ADDENDUM 3	BP	16/09/30		
4	ISSUED FOR TENDER	BP	16/09/02		
3	ISSUED FOR FINAL REVIEW	BP	16/08/12		
2	ISSUED FOR 90% SUBMISSION	BP	16/04/18		
1	ISSUED FOR 50% SUBMISSION	BP	15/10/27		

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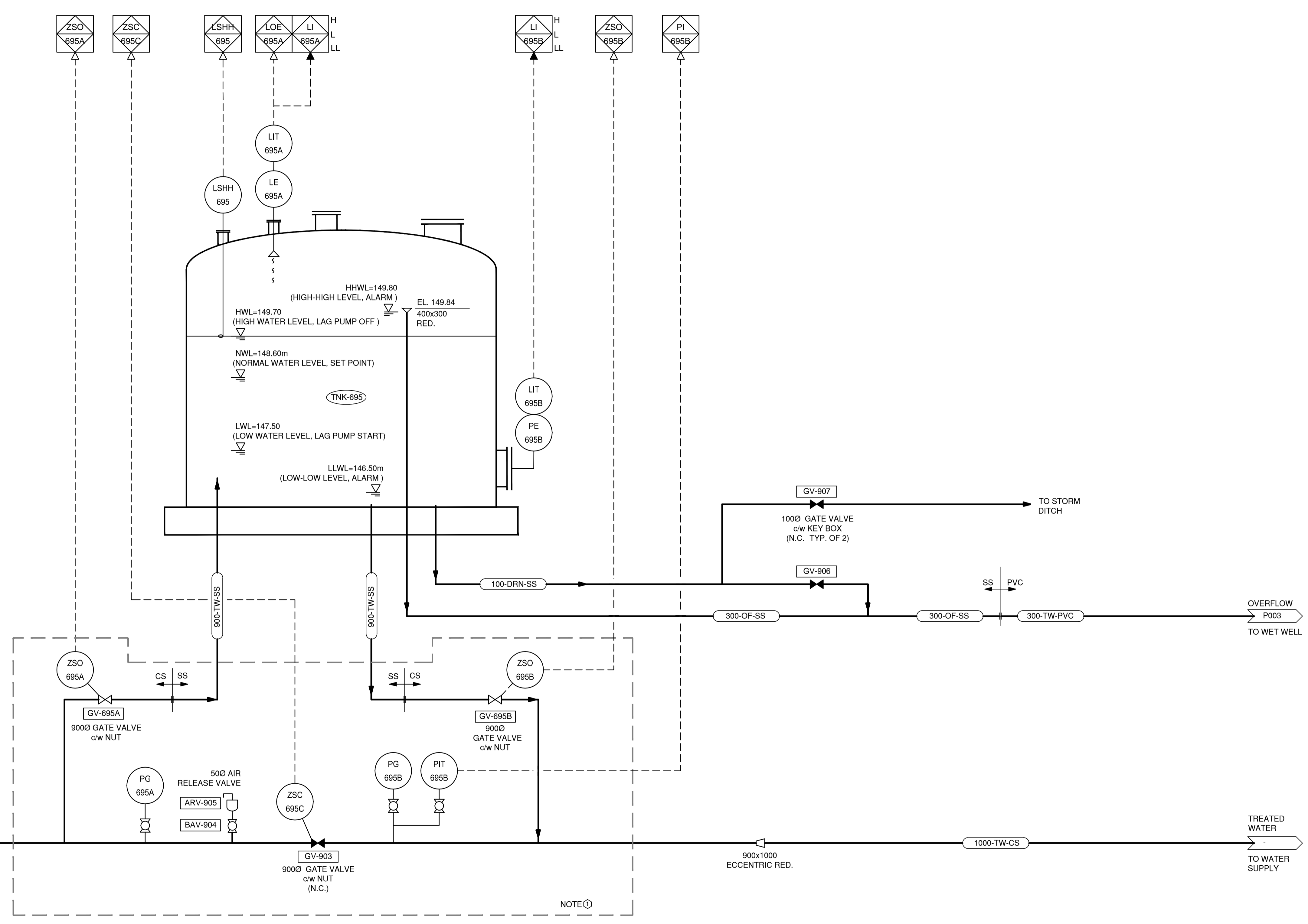
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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2 PROCESS & INSTRUMENTATION DIAGRAM UV REACTORS	DRAWING NO. 15-508- P009 PROJECT: 112311316 REV. 5
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DRAWING PATH: C:\Users\yazeng\AppData\Local\Temp\5572\Unsaved Drawing2.dwg Tab: P009 Sep 30, 2016 11:23:28am DESTROY PRINTS OF PREVIOUS REVISION

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SURGE PROTECTION TANK
CAPACITY: 315 m³

NOTES:
① EXISTING VALVE CHAMBER, Ø900 GATE VALVES, RELOCATED.



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NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTD BY	DATE
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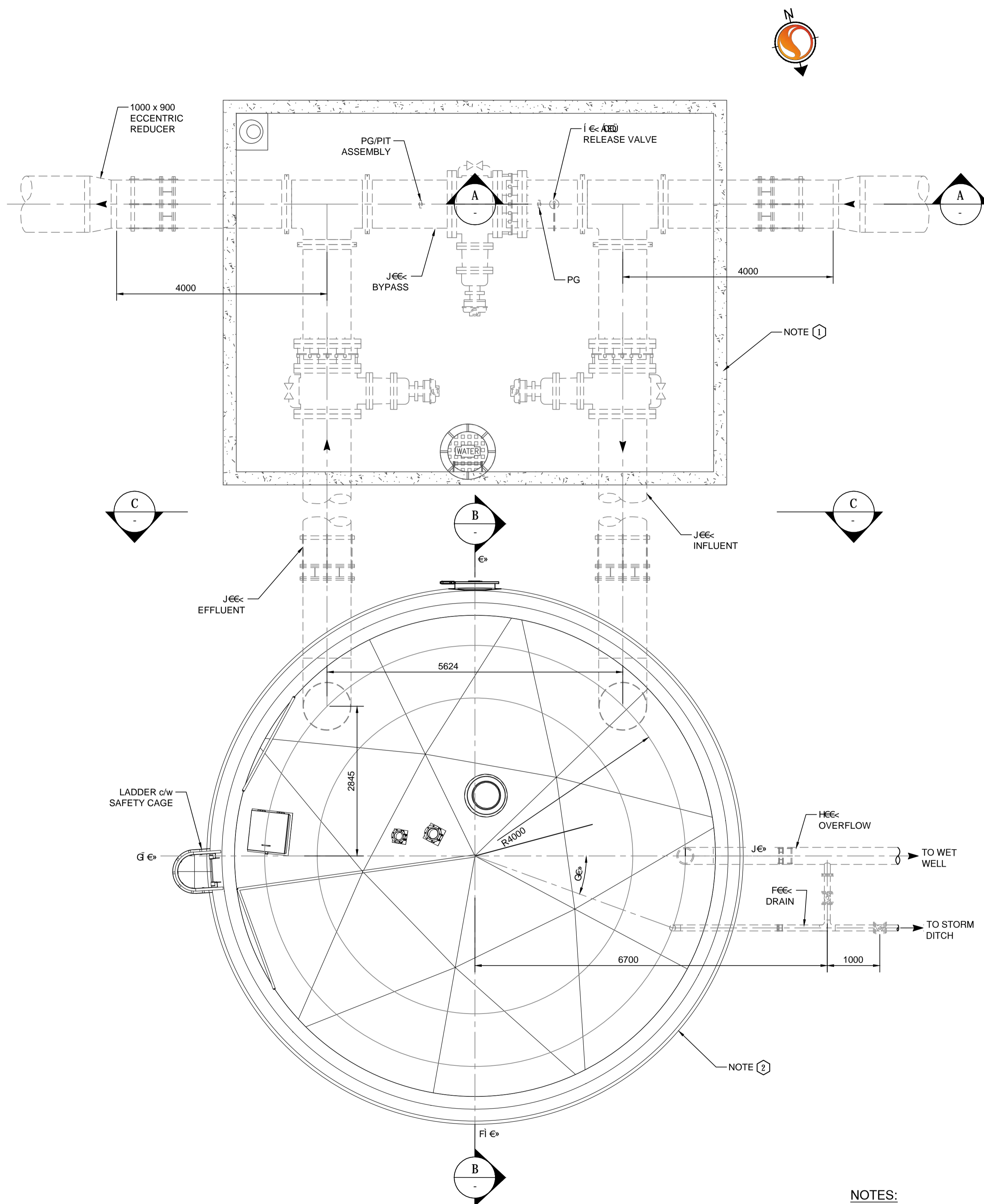
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APPROVED: BP	DATE: 16/09/30

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2 PROCESS & INSTRUMENTATION DIAGRAM SURGE TANK	DRAWING NO. 15-508- P011 PROJECT: 112311316 REV. 1
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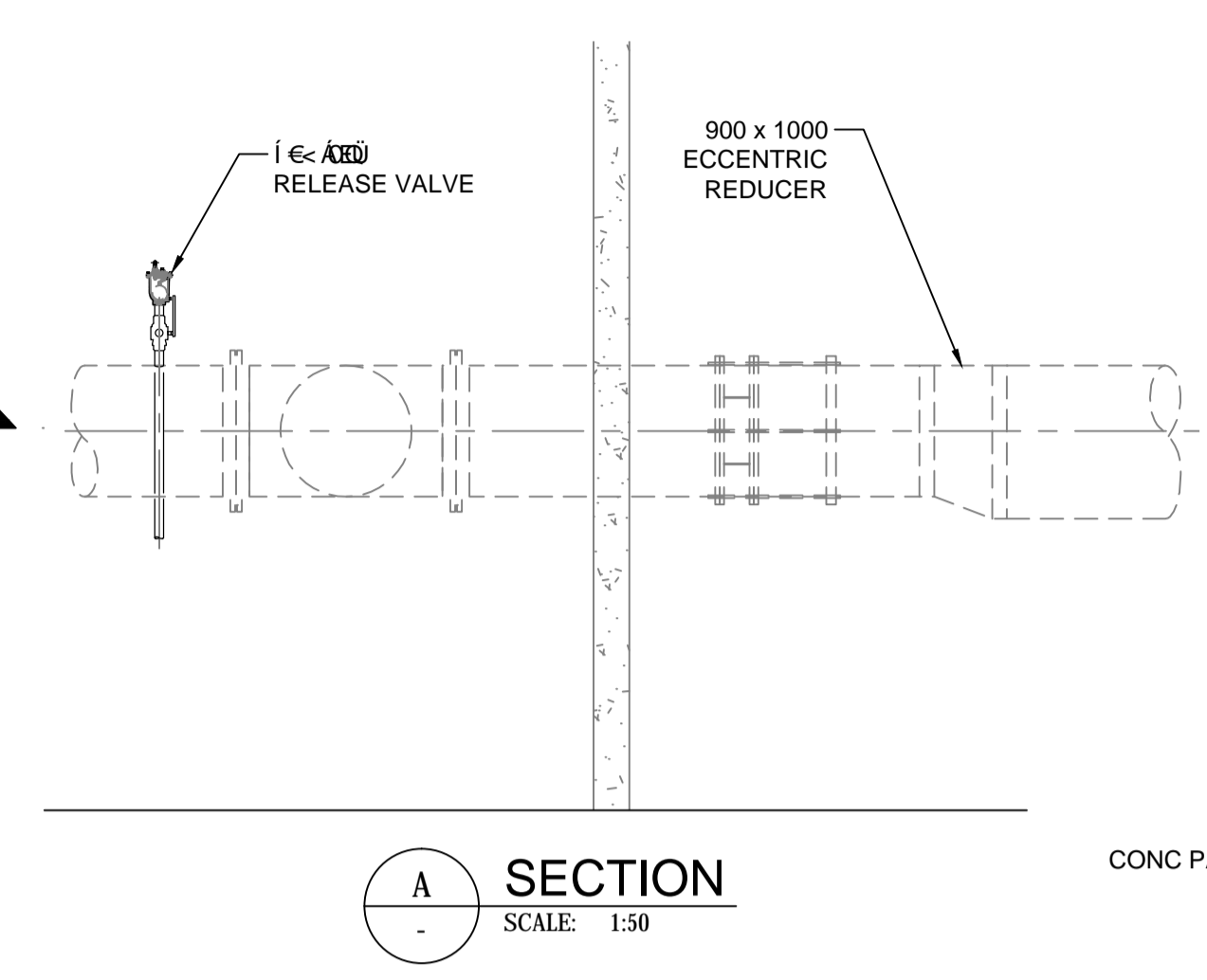
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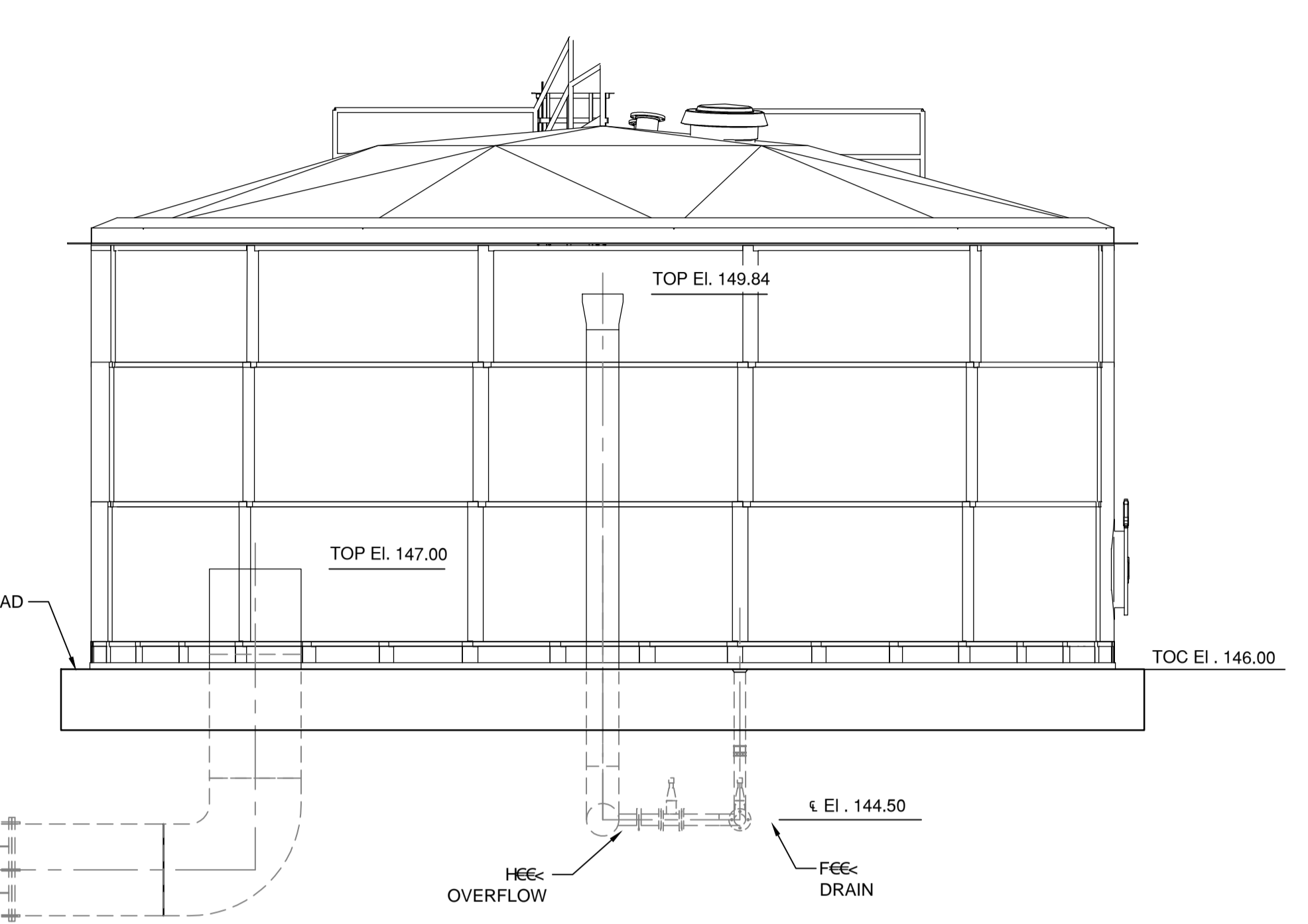


SURGE PREVENTION TANK - PLAN
SCALE: 1:15

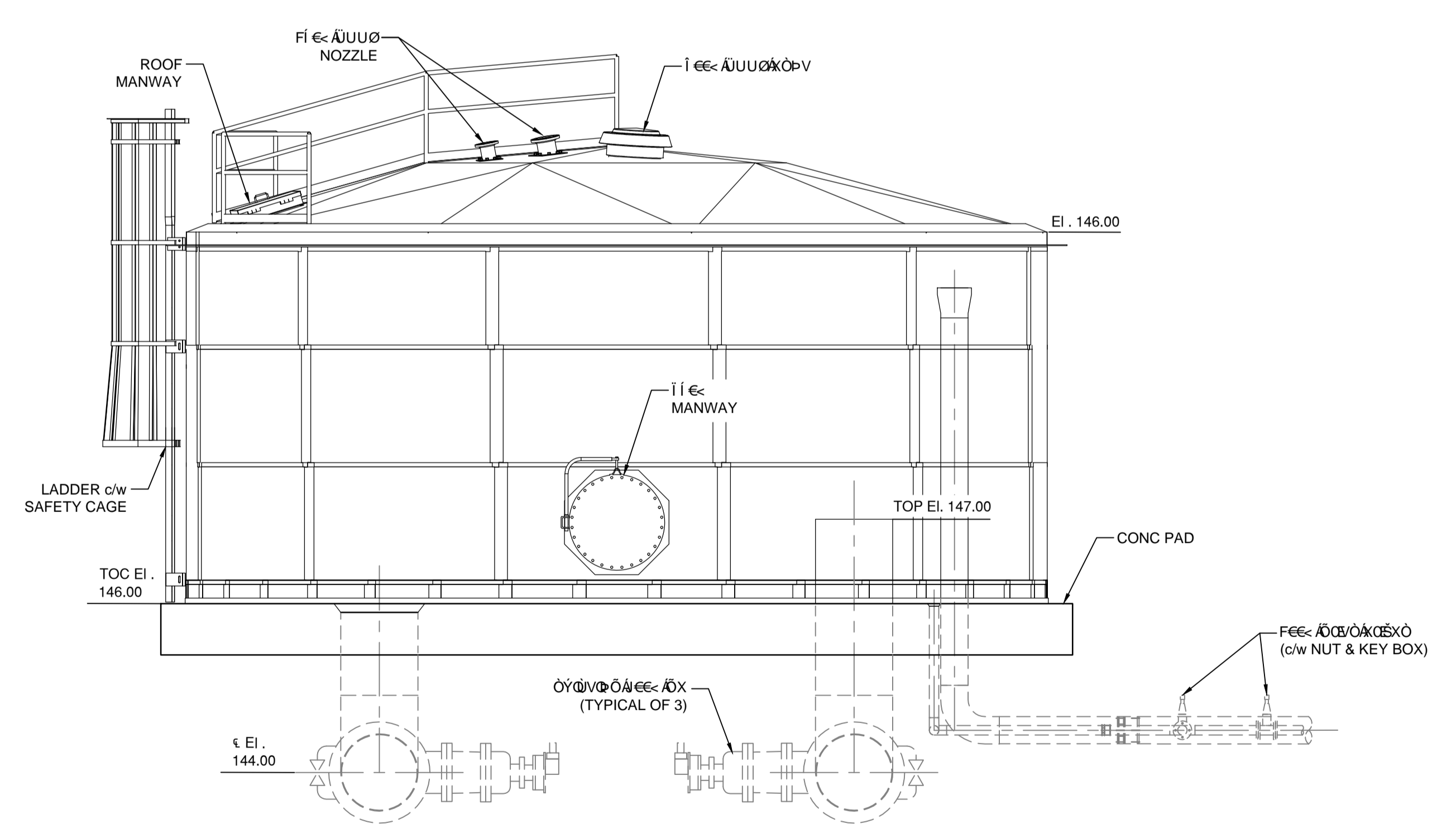
- NOTES:**
- ① RELOCATE THE EXISTING GATE VALVES AND VALVE CHAMBER, REFER TO DRAWING CIVIL DRAWING C301.
 - ② WATER STORAGE TANK BY STI ENVIRO CORP. Ø10.2m x 4.5m (SWD).



A SECTION
SCALE: 1:50



B SECTION
SCALE: 1:50



C SECTION
SCALE: 1:50

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1	ADDENDUM 3	BP	16/09/30		

DESIGNED: BP	SCALE: 1:50
DRAWN: BZ	DATE: 16/09/30
CHECKED: BP	DATE: 16/09/30
APPROVED: BP	DATE: 16/09/30

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2
SURGE PREVENTION TANK

DRAWING NO. 15-508- P109
PROJECT: 112311316
REV. 1

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DESTROY PRINTS OF PREVIOUS REVISION