



**TENDER 16-20**  
**WATER TREATMENT BUILDING**

**ADDENDUM NO. 2**

**September 23<sup>rd</sup>, 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**

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**11. Proponent Question:**

There seems to be coordination issues in relation to the wall sections along GL 1 and GL 5. 5/A403 refers to the elevation views of the building to determine the T.O. concrete height. The elevations on A201 show a T.O. concrete height that varies significantly. 7/S105 shows the same wall section however it shows a constant TO concrete height of 45.8m. Also, the location of the masonry cladding support angle and the extent of masonry cladding are different between architectural and structural.

**Response:**

The height indicated in detail 7/S105 is a maximum value. The concrete wall shall step as noted in the architectural elevations/details with the concrete elevation remaining 400mm above the steel angle support. The block veneer shall step and be located as indicated in the architectural elevations.

**12. Proponent Question:**

Please provide rebar details for the cast in place stairs that provide access to Room 002.

**Response:**

Use reinforcing similar to stairs in detail 8/S103.

**13. Proponent Question:**

See attached sketch A101 North Elevation and clarify what this "precast" note is pointing at.

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**Response:**

Disregard.

**14. Proponent Question:**

Can you provide more detail on the 38mm or 89mm Owner supplied round logs and how they are intended to be fastened to the structure behind.

**Response:**

These are Owner Supplied logs, cut to varying sizes and widths. They will be glued to the plywood backing and secured with finishing nails until the glue dries.

**15. Proponent Question:**

Regarding the division of scope between Electrical and Mechanical, HVAC controls and Process controls. In Appendix 1A (Price breakdown) you have 23.8 Controls (HVAC) and 25.3 Control panels (Process) but the specifications for HVAC controls are show in Section 250901 to 250994. Typical HVAC controls would be provided through Mechanical, and process controls would be provided through Electrical.

Should section 250901 to 250994 be changed to section 230901 to 230994 HVAC controls supplied through mechanical, or is it the intent that HVAC controls section 250901 to 250994 should be supplied through Electrical?

**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

**16. Proponent Question:**

Can you add a section to the tender document that covers potential cost savings?

**Response:**

No.

**17. Proponent Question:**

Who do I contact for technical electrical/control clarifications?

**Response:**

During the Tendering period as per Section 1.2 of the Instructions to Tenderers all inquiries are to be sent in writing to the Senior Buyer.

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**18. Proponent Question:**

In order for the supplier of the specified Westfall static mixer to quote the equipment correctly, they ask if the engineer can provide the following information:

**Response:**

- Main pipe size and I.D. Ø1050, ID=1047.75mm
- Main line fluid and flow rate Drinking Water, 92 MLD
- Main line temperature 5 - 15 °C
- Main line pressure low pressure @ 18 PSI
- Main line viscosity 1.13x10<sup>-6</sup> m<sup>2</sup>/s
- How many injection points are required: 2 ports per each static mixer (one duty and one standby plugged)
- Fluid being injected (if multiple, list below) Hypochlorine (NaOCl)
- Concentration of injected fluid 0.8% typically
- Flow rate of injected fluid 18 Liter/min
- Temperature of injected fluid Room temperature
- Viscosity of injected fluid As water

**19. Proponent Question:**

Supplementary General Conditions A9.1 – Duty of Care. Contractors should never give up the right to sue for errors or omissions. What and who exactly are being discussed in this section. It must be clear where error and omission responsibilities lie.

**Response:**

The purpose of the clause is to limit the responsibilities of the owner, and the remedies of the contractor, to what is stated in the contract, and to prevent the owner from being subject to an additional duty of care in tort (typically negligence). If the owner breaks a promise in the contract, then it may be liable, but the clause prevents the owner from being held liable where it has not made a promise. It puts the onus on the contractor to exercise due diligence throughout the project (starting with preparation of its bid), and to investigate/confirm the accuracy of information wherever there's a chance that wrong or missing information could impact its performance of the contract.

As this is the owner's position, the contractor needs to get its own legal advice on the meaning and implications of the clause.

**20. Proponent Question:**

Supplementary General Conditions 11.2.3 – Refers to Maintenance Period. Is that the same as the warranty period of one year? Or, where is maintenance period defined/described in the agreement or supplementary conditions?

**Response:**

Maintenance Period should have same meaning as Warranty Period.

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**21. Proponent Question:**

Please clarify what is required for the turned columns. Structural show this as cedar column, Architectural show this as a cedar clad steel column with cladding by others.

**Response:**

The columns are as per Floor Framing Plan – Level 1 on S103.

**22. Proponent Question:**

Please provide slump information for cast-in-place concrete.

**Response:**

Concrete mix designs are a delegated design item and will be reviewed upon submission.

**23. Proponent Question:**

S102 - Please clarify the phrase in Note 8 - Soil shall be improved as required by the geotechnical engineer. Refer to the Geotechnical Report. This implies the bidding contractor's responsibility to address ANY and ALL found conditions, deficiencies in soils in bearing and seismic abilities.

**Response:**

The contractor is responsible for improving/preparing the soil as noted in the geotechnical report. Any found conditions will be addressed under the direction of the geotechnical consultant in order to achieve the foundation requirements.

**24. Proponent Question:**

S102 – Note #6 refers to Architectural drawings for all slab recesses - Architectural does not reference or layout the 2 meter deep trenches

**Response:**

The layout of the trenches is clarified in the attached drawings.

**25. Proponent Question:**

S102 - If Existing Shaft Riser Lid is to be by others why are we told the design requirements and why are we to co-ordinate several hatch openings with Process. Please clarify the intent and what contractor is responsible for what work.

**Response:**

The shaft riser with slab openings and the installation of the steel hatch (provided by the City of Campbell River) is part of contract #1. The concrete curbs around the riser slab openings is part of contract #2.

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**26. Proponent Question:**

03 35 37 indicates that Room 101 and 105 are to receive polished concrete floor finish. The finish schedule on A002 indicates that Room 101, 102, 104 and 104 receive a polished concrete finish. Please advise.

**Response:**

Please follow the finish schedule. Rooms 101, 102, 104 and 105 are to receive polished concrete.

**27. Proponent Question:**

We are requesting for aluminum window frames And Venting windows all other aspects of the specs will be matched.

**Response:**

a. Substitution for Versa Wall not approved. Alumicor windows are considered acceptable, but they are required to be stick built and thermally broken. Furthermore, they must be able to match the detailing provided in the drawings for both inside and outside glazing, including the glazed corner detail 8 / A402.

b. Venting windows are not approved. The casement windows appear to only be shown in a punched window application and not in a curtain wall configuration.

**28. Proponent Question:**

Is there an "Issued for Tender Drawing List #15-508-C00....." available, which should follow Supplementary Specifications as per the Invitation to Tender, Table of Contents?

**Response:**

See the attached drawing list.

**29. Proponent Question:**

Supplementary Specifications Table of Contents indicates 31 05 16 contains 3 pages. Is this incorrect as the actual section contains only 2 pages?

**Response:**

Table of Contents is a typo, Spec Section 31 05 16 has 2 pages.

**30. Proponent Question:**

Drawing C102, Note 4 references C301 "Gravel Access Typical Section". Is this detail located elsewhere or can it be provided.

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**Response:**

Replace Drawing C102, Note 4 with the following text: "Snow Storage Area. Provide 200mm of granular base compacted to 95% modified proctor density on approved subgrade.

**31. Proponent Question:**

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

**Response:**

"Appendix 1A" Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**32. Proponent Question:**

Should there be a pay item for the 200 diameter water system and hydrant as detailed on C103, or is it to be included under some other pay item?

**Response:**

The pay item for this work is 43.2 Fire pump; pipework and hydrant system complete.

**33. 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:**

"Appendix 1A" Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**34. 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:**

"Appendix 1A" Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**35. Proponent Question:**

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

**Response:**

"Appendix 1A" Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

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**36. Proponent Question:**

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

**Response:**

“Appendix 1A” Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**37. 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:**

“Appendix 1A” Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**38. 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:**

“Appendix 1A” Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**39. 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
- **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.

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**Response:**

“Appendix 1A” Detailed Schedule of Quantities and Prices – GST Excluded will be updated and provided with Addendum No. 3.

**40. Proponent Question:**

Regarding the drawings, the pipe says it is supplied by Owner - see drawings C105 detail 1 and C201 watermain profile.

**Response:**

The drawings have been modified to clarify that the pipe supply is by the contractor, see the revised drawings attached.

**41. Proponent Question:**

B/P107 shows a cast-in-place concrete trench/sump with grating that doesn't appear to show up on structural. Could you please provide structural details.

**Response:**

See the attached drawings.

**42. Proponent Question:**

Please confirm if all paving will be paid for by the Owner, including patches on Hwy 28 due to watermain work.

**Response:**

Paving by Owners contractor under separate contract. Contractor responsible to coordinate.

**43. Proponent Question:**

Please provide contact information for Calgon representative regarding the UV Reactor relocation.

**Response:**

During the Tendering period as per Section 1.2 of the Instructions to Tenderers all inquiries are to be sent in writing to the Senior Buyer.

**44. 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:**

Question received and will be responded to in Addendum No. 3.



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**45. 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:**

Question received and will be responded to in Addendum No. 3.

**46. 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

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:**

Question received and will be responded to in Addendum No. 3.

**47. Proponent Question:**

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

**Response:**

Question received and will be responded to in Addendum No. 3.

**48. Proponent Question:**

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

**Response:**

Question received and will be responded to in Addendum No. 3.

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**49. Proponent Question:**

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

**Response:**

Question received and will be responded to in Addendum No. 3.

**50. Proponent Question:**

Please confirm the extent of the Owner supplied 1200mm and 1000mm steel watermains. 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:**

Question received and will be responded to in Addendum No. 3.

**51. Proponent Question:**

Door 003 is missing from the door schedule.

**Response:**

Question received and will be responded to in Addendum No. 3.

**52. Proponent Question:**

Please confirm the project specific specified U-Value of 1.75 W/m<sup>2</sup>\*K will need to be confirmed via computerized thermal modelling.

**Response:**

Question received and will be responded to in Addendum No. 3.

**53. 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:**

Question received and will be responded to in Addendum No. 3.

**54. Proponent Question:**

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

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**Response:**

Question received and will be responded to in Addendum No. 3.

**55. Proponent Question:**

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

**Response:**

Question received and will be responded to in Addendum No. 3.

**56. Proponent Question:**

Please confirm class 1 clear anodized finish is correct.

**Response:**

Question received and will be responded to in Addendum No. 3.

**57. Proponent Question:**

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

**Response:**

Question received and will be responded to in Addendum No. 3.

**58. 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. 3.

**59. 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:**

Question received and will be responded to in Addendum No. 3.

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**Addendum Item 2  
Section 263213 Electrical Generator Section 2.10.9**

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Delete:

*Each section of the paralleling system shall be listed and labeled including all covers, barriers, and supports. Breakers and individual control sections shall be isolated from each other by insulated metal barriers.*

AND replace with:

*Each section of the generator transfer scheme breakers shall be listed and labeled including all covers, barriers, and supports. Breakers and individual control sections shall be isolated from each other by insulated metal barriers.*

**Addendum Item 3  
Supplementary Specification 43 41 11**

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Spec Section 43 41 11 – Epoxy Lined Bolted Steel Tank has been attached to this addendum to cover off the surge tank details.

The following describes an addition to the scope of work to include a valve chamber and surge tank on the access road to the site. A 10.2m diameter steel tank will be installed on a concrete pad on the north side of the access road to the site. A concrete valve chamber will be installed, which includes 3 owner supplied 900mm diameter gate valves. An asphalt pullout will be provided adjacent to the valve chamber. Additional information on detailed connections to Surge tank will be provided in Addendum 3.

**Addendum Item 4  
Drawings**

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The following drawings have been revised and/or added:

- a. S102, 105, 106 are structural drawings relating primarily to grating and trench details in the building.
- b. C201, C105 are clarifications as pipe is not owner supplied.
- c. C101, C305, S110 and S111 have been revised and/or added to the set to detail out surge tank details and the associated valve chamber.

**End of Addendum**

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

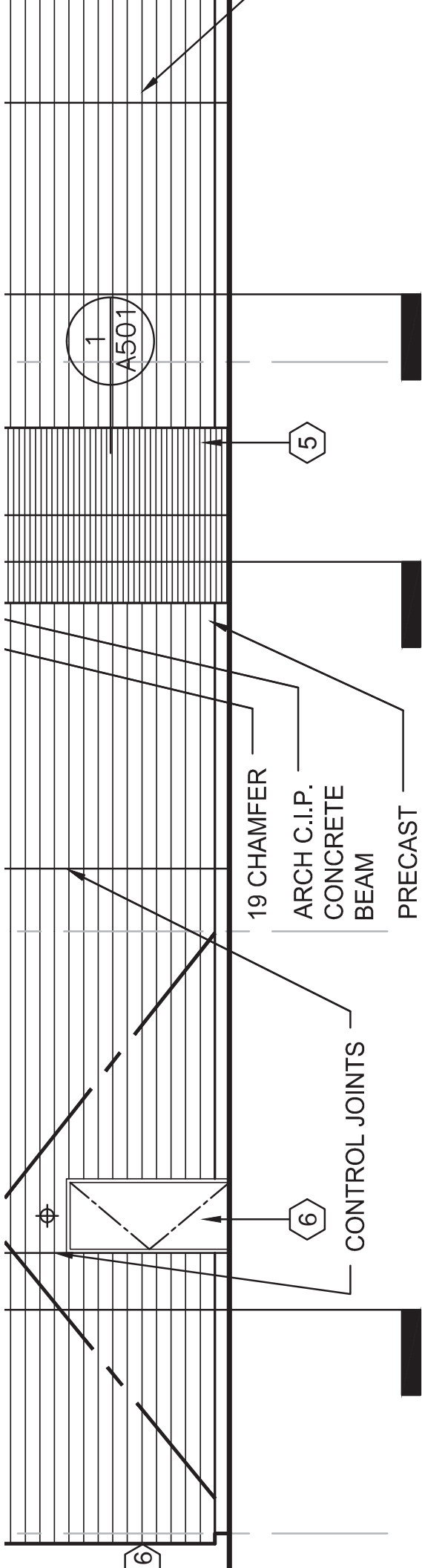
Clinton J. Crook, SCMP, CPSM  
Senior Buyer

## DRAWING LIST

SHEET NUMBER	SHEET TITLE
C000	COVER SHEET
C001	CIVIL LEGEND AND GENERAL NOTES
C101	PLAN AND PROFILE - ACCESS ROAD
C102	SITE GRADING AND DRAINAGE
C103	SITE UTILITIES
C104	BUILDING SECTIONS
C105	UTILITY PROFILES
C201	JOHN HART WATER QUALITY CENTRE PLAN AND PROFILE
C202	JOHN HART WATER QUALITY CENTRE WATERMAIN TIE-IN DETAILS
C301	CIVIL DETAILS
C302	CIVIL DETAILS
C303	CIVIL DETAILS
C304	CIVIL DETAILS
C305	CIVIL DETAILS
A001	GENERAL NOTES, ABBREVIATIONS AND ASSEMBLIES
A002	SCHEDULES AND IMAGES
A101	FLOOR PLAN - LEVEL 0
A102	FLOOR PLAN - LEVEL 1
A111	REFLECTED CEILING PLAN
A121	ROOF PLAN
A201	ELEVATIONS
A301	BUILDING ELEVATIONS AND SECTIONS
A401	EXTERIOR STAIR AND RAMP
A402	INTERIOR STAIR
A403	WALL SECTIONS
A404	WALL SECTIONS
A405	WALL SECTIONS - DETAILS
A410	MECHANICAL ENCLOSURE
A501	DOOR AND WINDOW DETAILS
A502	DETAILS
A701	MILLWORK DETAILS
S101	GENERAL STRUCTURAL NOTES
S101a	GENERAL STRUCTURAL TABLES
S102	FOUNDATION PLAN - LEVEL 0
S103	FLOOR FRAMING PLAN - LEVEL 1
S104	ROOF FRAMING PLAN
S105	FOUNDATION & LEVEL 0 SECTIONS & DETAILS
S106	FOUNDATION & LEVEL 0 SECTIONS & DETAILS
S107	LEVEL 1 SUSPENDED SLAB SECTIONS & DETAILS
S108	ROOF FRAMING DETAILS & SECTIONS
S109	ROOF FRAMING DETAILS & SECTIONS
S110	VALVE CHAMBER NOTES & DETAILS
M001	MECHANICAL LEGEND AND SCHEDULES
M002	MECHANICAL DETAILS
M101	HVAC PLAN - LEVEL 0

M102	HVAC PLAN - LEVEL 1
M200	PLUMBING SCHEMATICS AND EMERGENCY SHOWER AND EYE WASH UNIT
M201	PLUMBING PLAN - FOUNDATION LEVEL
M202	PLUMBING PLAN - LEVEL 0
M203	PLUMBING PLAN - LEVEL 1
E001	LEGEND, SYMBOLS, ABBREVIATIONS AND NOTES
E002	STANDARD DETAILS
E003	STANDARD DETAILS
E004	STANDARD DETAILS
E101	SITE PLAN
E201	SINGLE LINE DISTRIBUTION DIAGRAM SHEET 1
E202	SINGLE LINE DISTRIBUTION DIAGRAM SHEET 2
E203	VFD WIRING SCHEMATIC (P-400, P-410)
E204	VFD WIRING SCHEMATIC (P-101, P-111, P-121, P-131)
E301	POWER & INSTRUMENTATION PLAN LEVEL 0
E302	POWER & INSTRUMENTATION PLAN LEVEL 1
E303	LIGHTING PLAN - LEVEL 0
E304	LIGHTING PLAN - LEVEL 1
E305	LIGHTING PANEL & LUMINAIRE SCHEDULE
E306	PANEL C SCHEDULE
E307	CABLE SCHEDULE
E308	WIRING SCHEMATIC
E309	SECURITY SYSTEM BLOCK DIAGRAM
E401	AREA CLASSIFICATION MAP
E501	CONTROL ARCHITECTURE
E502	CONTROL BLOCK DIAGRAM
E503	OSHG PLC CONTROL BLOCK DIAGRAM
E504	MCP-100 CABINET LAYOUT
E505	MCP-100 CABINET BILL OF MATERIALS
E506	MCP-100 PLC LAYOUT
E507	MCP-100 TERMINAL STRIP DETAILS
E508	PLC IO TERMINALS SHEET 1 OF 9
E509	PLC IO TERMINALS SHEET 2 OF 9
E510	PLC IO TERMINALS SHEET 3 OF 9
E511	PLC IO TERMINALS SHEET 4 OF 9
E512	PLC IO TERMINALS SHEET 5 OF 9
E513	PLC IO TERMINALS SHEET 6 OF 9
E514	PLC IO TERMINALS SHEET 7 OF 9
E515	PLC IO TERMINALS SHEET 8 OF 9
E516	PLC IO TERMINALS SHEET 9 OF 9
P001	LEGENDS AND ABBREVIATIONS
P002	PROCESS FLOW DIAGRAM
P003	PROCESS & INSTRUMENTATION DIAGRAM RAW WATER PUMP STATION
P004	PROCESS & INSTRUMENTATION DIAGRAM BRINE WATER SYSTEM
P005	PROCESS & INSTRUMENTATION DIAGRAM SODIUM HYPOCHLORITE GENERATION
P006	PROCESS & INSTRUMENTATION DIAGRAM SODIUM HYPOCHLORITE STORAGE
P007	PROCESS & INSTRUMENTATION DIAGRAM SODIUM HYPOCHLORITE DOSING

P008	PROCESS & INSTRUMENTATION DIAGRAM CONTAINMENT AND WASTE TANK
P009	PROCESS & INSTRUMENTATION DIAGRAM UV REACTORS
P010	PROCESS & INSTRUMENTATION DIAGRAM AIR BACKWASH SYSTEM
P021	STANDARD DETAILS - SHEET 1 OF 2
P022	STANDARD DETAILS - SHEET 2 OF 2
P101	TREATMENT BUILDING LAYOUT
P102	MECHANICAL PROCESS PIPING
P103	SODIUM HYPOCHLORITE GENERATION PROCESS ARRANGEMENT
P104	MECHANICAL PROCESS SECTIONS - SHEET 1 OF 2
P105	MECHANICAL PROCESS SECTIONS - SHEET 2 OF 2
P106	SODIUM HYPOCHLORITE SYSTEM SECTIONS - SHEET 1 OF 2
P107	SODIUM HYPOCHLORITE SYSTEM SECTIONS - SHEET 2 OF 2
P108	SODIUM HYPOCHLORITE STORAGE TANK SCHEDULE



1  
A501

5

19 CHAMFER  
ARCH C.I.P.  
CONCRETE  
BEAM  
PRECAST

CONTROL JOINTS

6

Please clarify what this "precast" note is pointing at.

# 1 NORTH ELEVATION

SCALE: 1:100

1  
A101



## **Part 1 GENERAL**

### **1.1 Section Includes**

- .1 Design, supply and install an epoxy lined steel bolted potable water storage tank, including tank structure and tank appurtenances as shown on the submittal drawings and described herein.
- .2 All required labour, materials, erection, and equipment shall be included.

### **1.1 RELATED WORK**

- .1 Section 40 05 13 – Process Piping System
  - .2 Division 1 – General Requirements
  - .3 Division 9 – Finishes
  - .4 Division 26 – Electrical

### **1.2 SEISMIC DESIGN AND ANCHORAGE**

- .1 All components of the system shall be designed as a post disaster structure to resist and be properly secured for seismic loads as specified in the British Columbia Building Code (BCBC 2012). For calculating the seismic load, site-specific data, refer to BCBC 2012 and Structural Design Notes.

### **1.2 Qualifications**

- .1 The Engineer's selection of factory applied epoxy lined bolted tank construction for this application has been predicated upon specific criteria, construction methods, and an optimum coating for resistance to internal and external tank corrosion. Deviations from the specified design, construction or coating details, will not be permitted.
- .2 The manufacturer shall specialize in the design, fabrication and erection of factory applied glass-fused-to-steel bolted tanks. The manufacturer shall employ a staff of full time design engineers, and shall own and operate its steel fabrication facilities and glass coating facilities.

.3 Manufacturers regularly engaged in the manufacture of epoxy lined steel tanks and who can demonstrate ten (10) installations of this specified design, in actual service for a period of not less than five (5) years will be considered as an acceptable Manufacturer.

.4 Strict adherence to the standards of design, fabrication, erection, product quality, and long term performance established in this Specification will be required by the Owner and Engineer.

### 1.3 Warranty

.1 The tank manufacturer shall include a warranty for the tank materials and coating. As a minimum, this warranty shall provide assurance against defects in material or workmanship for the period of 2 years and corrosion of the epoxy coated surface for the period of 5 years.

### 1.4 Reference Standards

- .1 American Water Works Association (AWWA)
  - AWWA D103 – Factory Coated Bolted Carbon Steel Tanks for Water Storage
- .2 SSPC SP-10 - Surface Preparation Standard – Near-White Metal Blast Cleaning
- .3 ASTM A36 - Standard Specification for Carbon Structural Steel
- .4 ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
- .5 ASTM A490 - Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength
- .6 ASTM C633-79 - Standard Test Method for Adhesion or Cohesion Strength of Thermal Spray Coatings
- .7 ASTM A992 - Standard Specification for Structural Steel Shapes

- .8 ASTM A1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- .9 ASTM C633-79 - Standard Test Method for Adhesion or Cohesive Strength of Flame-Sprayed Coatings
- .10 ISO 28706-1:2008 - Vitreous and Porcelain Enamels -- Determination of Resistance to Chemical Corrosion
- .11 ISO 2859 – Sampling Procedures for Inspection by Attributes
- .12 EN 14430:2004 – Vitreous and Porcelain Enamels – High Voltage Test
- .13 ISO 6370-2 – Vitreous and Porcelain Enamels – Determination of Resistance to Abrasion
- .14 National Building Code of Canada (NBCC) 2010
- .15 Province of British Columbia Occupational Health and Safety Regulations (1996)
- .16 Potable Water Requirement: All materials that will be in contact with potable water (or chemicals being added for potable water use) shall be approved by the National Sanitation Foundation for use with direct and continuous contact with potable water, and meet all requirements of ANSI/NSF 61.

## 1.5 Submittals

- .1 Submittals shall be in accordance with Division 1.
- .2 Submit six (6) copies of shop drawings showing details of construction and installation for all tanks and appurtenances to the Engineer for approval. Information shall include, but not limited to:
  - .1 Dimensions and locations of tank, fittings, accessories and fastenings
  - .2 Wall thicknesses
  - .3 Maximum range of service conditions - specific environmental conditions such as liquid temperature, etc.

- .4 Certification and structural calculations
  - .5 Certificates of corrosion resistance
  - .6 Design data, including seismic restraint design, handrail, ladder and safety cage design, signed and sealed by a structural Professional Engineer (P.Eng.) registered in British Columbia.
  - .7 Factory testing and inspection data
- .3 Submit six (6) copies of Operation and Maintenance Manuals. Complete sets of operating and maintenance instructions shall be provided in a bound manual format for tank and accessories. The information shall include:
- .1 Manufacturer's name, phone number, and mailing address
  - .2 Installation instructions
  - .3 Warranty
  - .4 Delivery and handling instructions
  - .5 Installation and maintenance instructions for all accessories and fittings
  - .6 Repair instructions for tanks and fittings
  - .7 Maintenance and inspection schedule
- .4 Submit an Equipment Warranty and Certification form in accordance with Division 1.
- .5 Submit Manufacturer's Certificates.

## Part 2 PRODUCTS

### 2.1 Design Intent

- .1 Design the epoxy lined bolted steel tank to provide short term storage or potable water for the City of Campbell River. The water level in the holding tank will be used as a control parameter for the raw water pumps.

.2 The water tank will be fed on a continuous basis. In case of power failure it can be expected that the tank will drain by gravity for up to 5 minutes.

.3 The minimum active volume required will be 160 m<sup>3</sup>. The minimum buffer volume should be 155 m<sup>3</sup>. The minimum total volume will be 315 m<sup>3</sup>.

.4 The maximum liquid level elevation in the tank will be 150 m or less. The minimum liquid level elevation for normal operation will be 148 m or less. Tank bottom will be at 146 m.

## 2.2 Acceptable Manufacturers

.1 STT Enviro Corp Tanks

.2 Approved Equal

## 2.3 Capacities and Performance

.1 The DSHT will be designed to the following criteria:

.1 Minimum total liquid storage capacity – 315 m<sup>3</sup>

.2 Minimum freeboard – 600 mm

.3 Water temperature – 5 - 15 Celsius

.4 Average flow rate – 37.5 ML/d

.5 Peak hour flow rate – 92.0 ML/d

## 2.4 Tank Foundation and Floor

.1 See structural drawings and specs

## 2.5 Epoxy Coating

### a. Preparation of Sheet Edges

- i. After initial sheet preparation, all full height vertical wall sheets and all rectangular shaped floor sheets shall be machined and a thermal spray coating of a corrosion resistant alloy shall be applied to the exposed sheet edges.

**b. Cleaning**

- i. After fabrication and prior to application of the coating system, all sheets shall be thoroughly cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.
- ii. Inspection of the sheets shall be made for traces of foreign matter or rust. Any such sheets shall be re-cleaned or grit-blasted to an acceptable level of quality.

**c. Coating**

- i. No shaping, bending, punching, flanging, or grinding may be done on the steel after blasting and before coating. Field coating, except for touch-up will not be permitted.
- ii. Coatings shall be in accordance with AWWA D103, Section 12.6 and interior coatings, if stored product inside the tank is potable water, shall be NSF standard 61 approved. Interior coating shall be Thermo-Thane 7000ä applied to 5 mils average film thickness (DFT). Exterior coating system shall be as follows:
  - a. Primer – One coat corrosion-inhibitor polyamide epoxy primer applied to 2 mils DFT.
  - b. Topcoat – One coat aliphatic acrylic polyurethane applied to 1.5 mils DFT.
- iii. The same epoxy coating as applied to the sheet surfaces shall be applied to the exposed edges.

**2.0 Materials:**

- a. **Bolts:** The heads on structural Bolts shall be completely encapsulated by high impact, UV resistance material.
- b. **Sealant:** Sealant shall be a one component, moisture cured, polyurethane compound.
- c. **NSF 61:** All materials (coatings, encapsulations, sealants, gaskets, etc.) in contact with potable water shall be certified to meet ANSI/NSF Standard 61.

## 2.6 Packaging

- d. All sheets shall be protected from damage during shipment. Prior to packing, the sheets will be kept separated, or heavy paper / plastic foam sheets will be placed between each panel to eliminate sheet-to-sheet abrasion.
- e. Individual stacks of panels (not applicable to panels shipped in racks) will be wrapped in heavy mil plastic and steel banded to special wood pallets built to maintain the roll-radius of the tank panels and minimize contact or movement of finished panels during shipment.

## 2.7 Roof

- f. **Dome Roof:** The roof shall be constructed of non-corrugated triangular aluminum panels which are sealed and firmly clamped in an interlocking manner to a fully triangulated aluminum space truss system of wide flange extrusions, thus forming a dome structure.
- g. **Clear Span:** The roof shall be clear span and designed to be self-supporting from the periphery structure with primary horizontal thrust contained by an integral tension ring.
- h. **Materials:**
  - i. Triangulated dome frame struts: AA6005A-T6 aluminum
  - ii. Structural frame node plates: 10 mm (0.375 inch) nominal thickness, AA6061-T6 aluminum
  - iii. Triangular dome panels: 1 mm (0.050 inch) nominal thickness, AA3003-H16 aluminum Sheet
  - iv. Triangular skylight panels, (if specified): nominal thickness of 6 mm (¼ inch) thick clear acrylic or polycarbonate
  - v. Perimeter tension/compression ring: AA6005A-T6 aluminum
  - vi. Fasteners: AA2024-T4 aluminum or austenitic series 300 stainless steel as required by the manufacturers design
  - vii. Sealant: Silicone, conforming to Federal Specification TT-S-00230
  - viii. Gaskets: Silicone, conforming to Federal Specification ZZ-R-765, Class 2, Grade 50 or equal, or Neoprene conforming to ASTM C509-00
  - ix. Dormers, doors, and hatches: AA6061-T6, AA6005A-T6, AA5086-H34 or AA5052-H36 aluminum, 2 mm (0.090 inch) nominal thickness
- i. **Roof Vent:** A properly sized vent assembly in accordance with AWWA D103 shall be furnished and installed above the maximum water level of sufficient capacity so that at

maximum design rate of water fill or withdrawal, the resulting interior pressure or vacuum will not exceed ½ inch (13 mm) water column. The overflow pipe shall not be considered to be a tank vent. The vent shall be constructed of aluminum such that the hood can be unbolted and used as a secondary roof access. The vent shall prevent the entrance of birds and/or animals by including an expanded aluminum screen (½ inch [13 mm]) opening. An insect screen of 23 to 25 mesh shall be provided and designed to open should the screen become plugged by ice formation.

- j. **Access Opening:** The manufacturer shall furnish two roof openings which shall be placed near the outside tank ladder. They shall be equipped with a hinged cover and a hasp for locking and have a clear dimension of at least 24 inches (610 mm) in one direction and 15 inches (381 mm) in the other direction. The opening shall have a curb at least 4 inches (102 mm) in height, and the cover shall have a downward overlap of at least 2 inches (51 mm), or a gasketed weather-tight cover in lieu of the 4 inch (102 mm) curb and 2 inch (51 mm) overlap.

## 2.8 Concrete Foundation

- a. See structural drawings and specs.

## 2.9 Tank Openings and Appurtances

.1 The tank will have the following openings / penetrations (along with approximate locations):

- .1 900 mm manway on the tank sidewall (approximately one meter above grade).
- .2 Truck Connection - Flanged 150 mm pipe spool and double gate valve on the tank sidewall (approximately one meter above grade).
- .3 Water Feed Line - Flanged 900 mm pipe spool on the tank bottom (tank will be fed from underneath, the pipe to extend inside the tank to 500 mm below the top water level).
- .4 Tank Emergency Overflow - Flanged 500 mm pipe spool on the tank sidewall (approximately 300 mm below the wall-roof interface). Provide a 600x500 flared outlet at the top of overflow pipe.



- .5 Outlet Line – Flanged 900 mm pipe spool on the tank bottom (tank will be drained to 150 mm above the tank bottom level or whatever is practical).
- .6 2 x 150 mm flanged connections at the top of the tank, both with blind flanges installed.
- .7 2 x 150 mm flanged connections at the bottom of the tank, both with blind flanges installed
- .8 All openings / penetrations locations are to be confirmed during shop drawing review.

## 2.10 Access, Convenience & Safety

- a. **External Ladder & Safety Cage:** An OSHA compliant outside tank ladder & safety cage shall be furnished and installed as shown on the submittal drawings. The ladder will be fabricated of aluminum and utilize grooved, skid-resistant rungs. The safety cage and any step-off platforms (as required by OSHA or customer submittal drawings) shall be fabricated of galvanized steel. Ladders shall be equipped with a hinged lockable entry device at top of tank.
- b. **Access Doors:** Access doors shall be provided as shown on the submittal drawings in accordance with the latest version of AWWA D103. The manhole opening shall be a minimum of 24 inches (610 mm) in diameter. The access door (shell manhole) and the tank shell reinforcing shall comply with AWWA D103 latest edition.

## Part 3 EXECUTION

### 3.1 Erection

- a. Construction shall be in strict accordance with the procedures outlined in the manufacturer's assembly manual and performed by an authorized installer of the tank manufacturer.
- b. The correct manufacturer approved jacks shall be used for assembly.
- c. Construction crews shall be responsible for any damage to tank components and coatings during assembly. Prior to assembly all surfaces shall be visually inspected and any damaged panels or components repaired or replaced.
- d. No backfill shall be placed against the tank sidewall without prior written approval and instructions of the tank manufacturer.

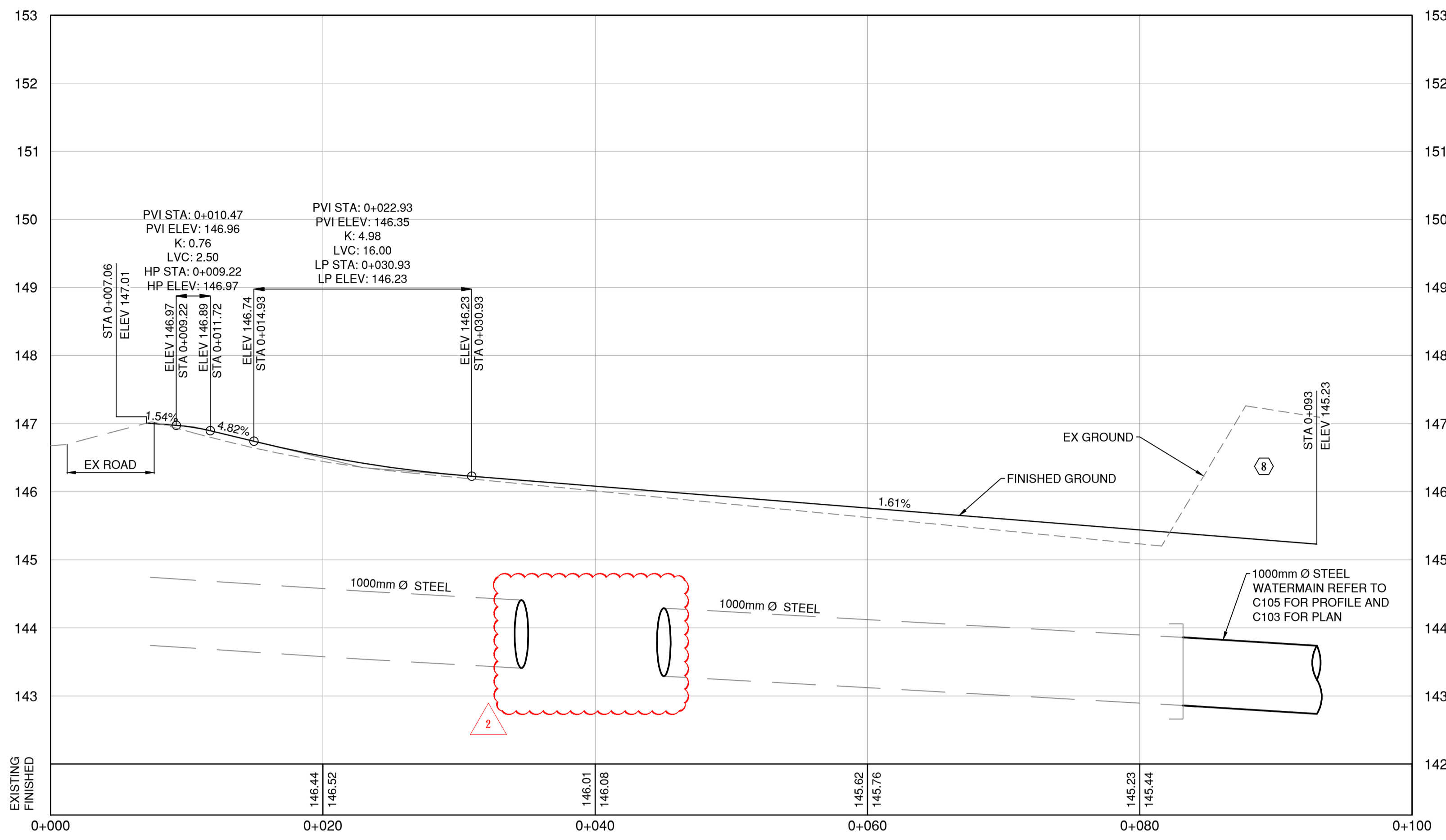
### 3.2 Commissioning

- a. **Hydrostatic Testing.** Following assembly and cleaning of the tank, the structure shall be tested for liquid tightness by filling tank to its overflow elevation. Any leaks shall be corrected in accordance with the manufacturer's recommendations. Water required for testing shall be furnished by the Owner at the time of tank erection completion, and at no charge to the tank erector. Disposal of test water shall be the responsibility of the Owner. Labor and equipment necessary for hydrostatic tank testing is to be included in the price of the tank.
- b. **Disinfection:** The tank structure shall be disinfected at the time of testing by chlorination in accordance with AWWA Standard C652-02 "Disinfection of Water Storage Facilities" as modified by the tank manufacturer. Disinfection shall not take place until tank sealant is fully cured. Acceptable forms of chlorine for disinfection shall be Liquid chlorine or Sodium hypochlorite as specified in AWWA C652-02. Acceptable methods of chlorination shall be chlorination method 1, 2, or 3 as outlined in AWWA C652-02 Section 4.3. Acceptable application methods shall be by means of chemical feed pump or spraying, brushing, painting of all water-contact surfaces.

### 1.3 Equipment Performance Testing

- .1 Ensure that the tank operates as intended.
- .2 Demonstrate satisfaction of requirements specified herein.

**END OF SECTION**



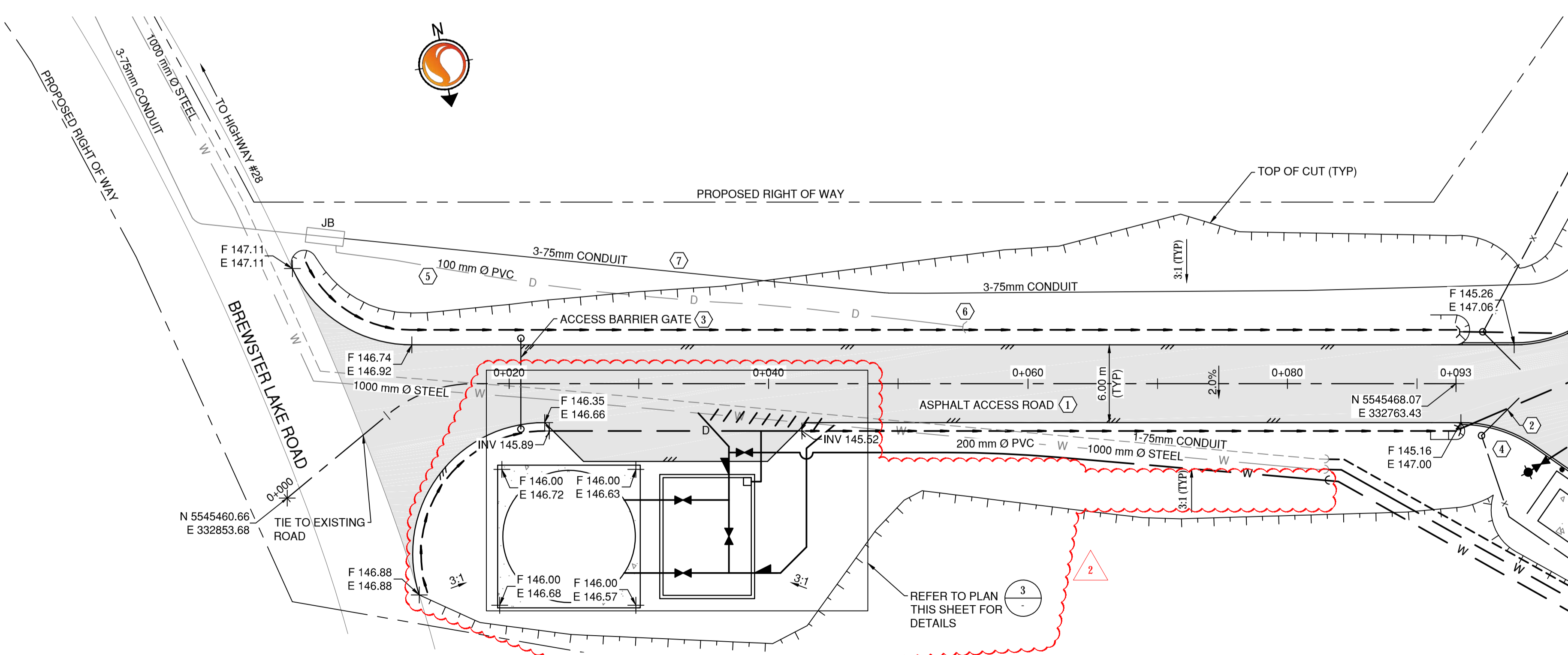
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**CONSTRUCTION NOTES:**

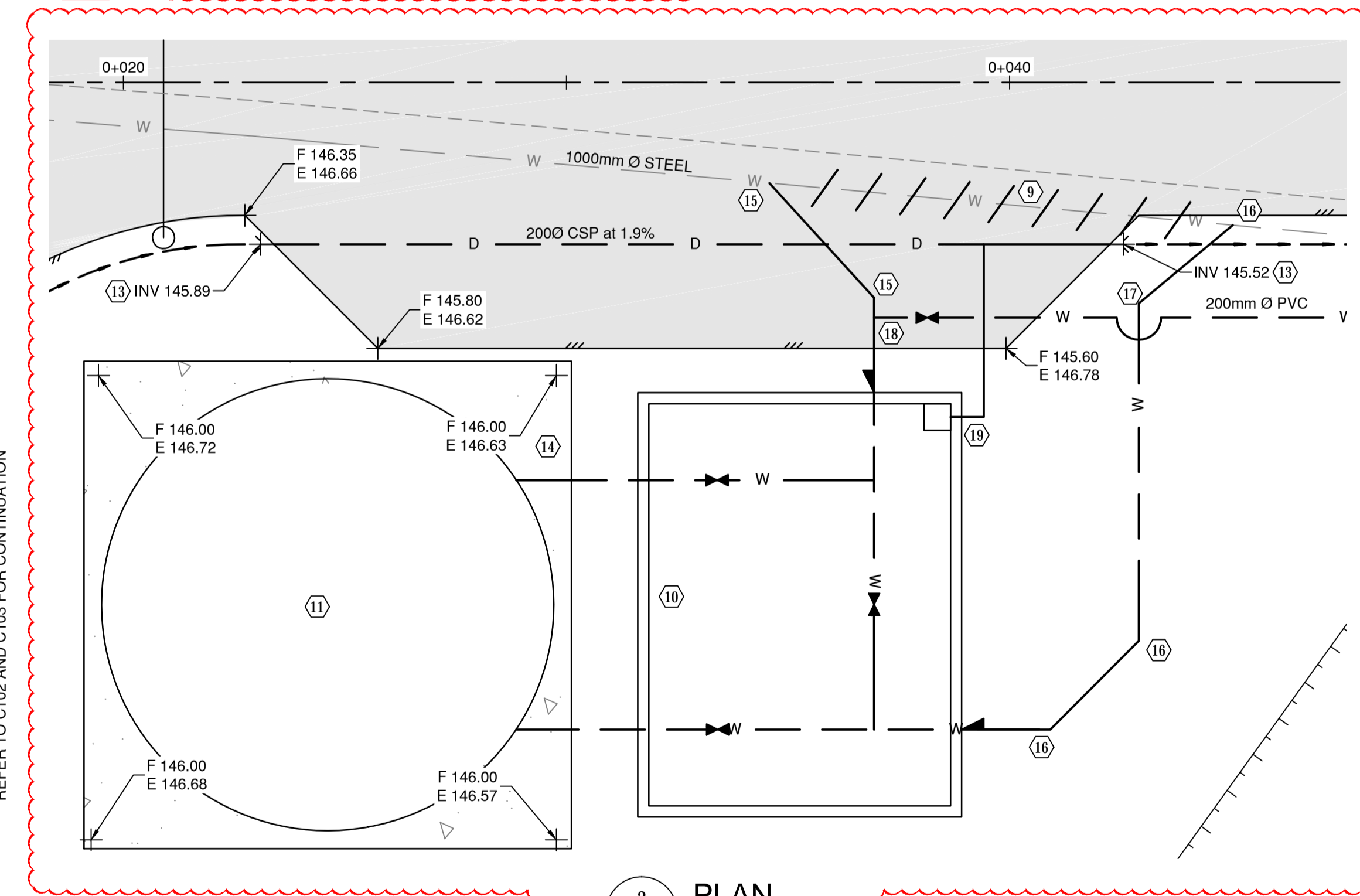
- ① ASPHALT ACCESS ROAD. FOR TYPICAL SECTION REFER TO C301. FOR ASPHALT PAVEMENT STRUCTURE REFER TO C301 FOR DETAILS. CONTRACTOR TO COORDINATE ALL WORK WITH ASPHALT CONTRACTOR. ALL GRAVEL PLACEMENT AND PREPARATION BY CONTRACTOR, ASPHALT PAVING/ MILLING BY ASPHALT CONTRACTOR.
- ② SECURITY GATE. REFER TO C302 FOR DETAILS.
- ③ ACCESS BARRIER GATE. REFER TO C302 FOR DETAILS.
- ④ CHAINLINK FENCE (TYP). REFER TO C302 FOR DETAILS.
- ⑤ EXISTING 100mm Ø PVC DRAIN FROM BC HYDRO JUNCTION BOX.
- ⑥ ADJUST EXISTING BC HYDRO DRAIN HEADWALL TO SUIT EMBANKMENT.
- ⑦ 3-75mm PVC CONDUIT FOR BC HYDRO POWER SUPPLY.
- ⑧ EXISTING GROUND IN THIS AREA TO BE CONFIRMED FOLLOWING COMPLETION OF CONTRACT 1
- ⑨ REMOVE 1000mm Ø PIPE AS SHOWN
- ⑩ CONCRETE VALVE CHAMBER. FOR DETAILS REFER TO C305 AND STRUCTURAL.
- ⑪ 10.2m Ø STEEL SURGE TANK. REFER TO SPECIFICATIONS DETAILS. DETAIL CONNECTION INFORMATION TO FOLLOW IN ADDENDUM 3
- ⑫ PROVIDE ASPHALT PULL OUT
- ⑬ INSTALL LANGLEY TYPE 11 PRECAST CONCRETE HEADWALL, OR APPROVED EQUIVALENT. PROVIDE 100mm CRUSHED GRANULAR BASE, COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
- ⑭ CONCRETE PAD FOR SURGE TANK. REFER TO S111 FOR DETAILS.
- ⑮ HORIZONTAL DEFLECTION AT JOINT (42.40°)
- ⑯ HORIZONTAL DEFLECTION AT JOINT (45.00°)
- ⑰ HORIZONTAL DEFLECTION AT JOINT (50.19°)
- ⑱ PROVIDE 200mm Ø TEE ON 1000mm Ø STEEL WATERMAIN. PROVIDE FLANGE ADAPTERS FOR CONNECTION TO 200mm PVC GATE VALVE
- ⑲ PROVIDE 50mm Ø PE FORCEMAIN FROM SUMP PUMP. PROVIDE DIRECT TEE CONNECTION INTO 200mm Ø CSP

**GENERAL NOTES:**

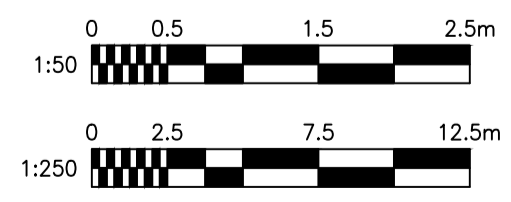
1. TOP SOIL AND SEED ALL CUT SLOPES AND AREAS DISTURBED DURING CONSTRUCTION. REFER TO C301 FOR DETAILS.



**2 PLAN**  
SCALE: 1:250



**3 PLAN**  
SCALE: 1:250



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NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTD BY	DATE
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1	ISSUED FOR TENDER	AG	16/09/22		

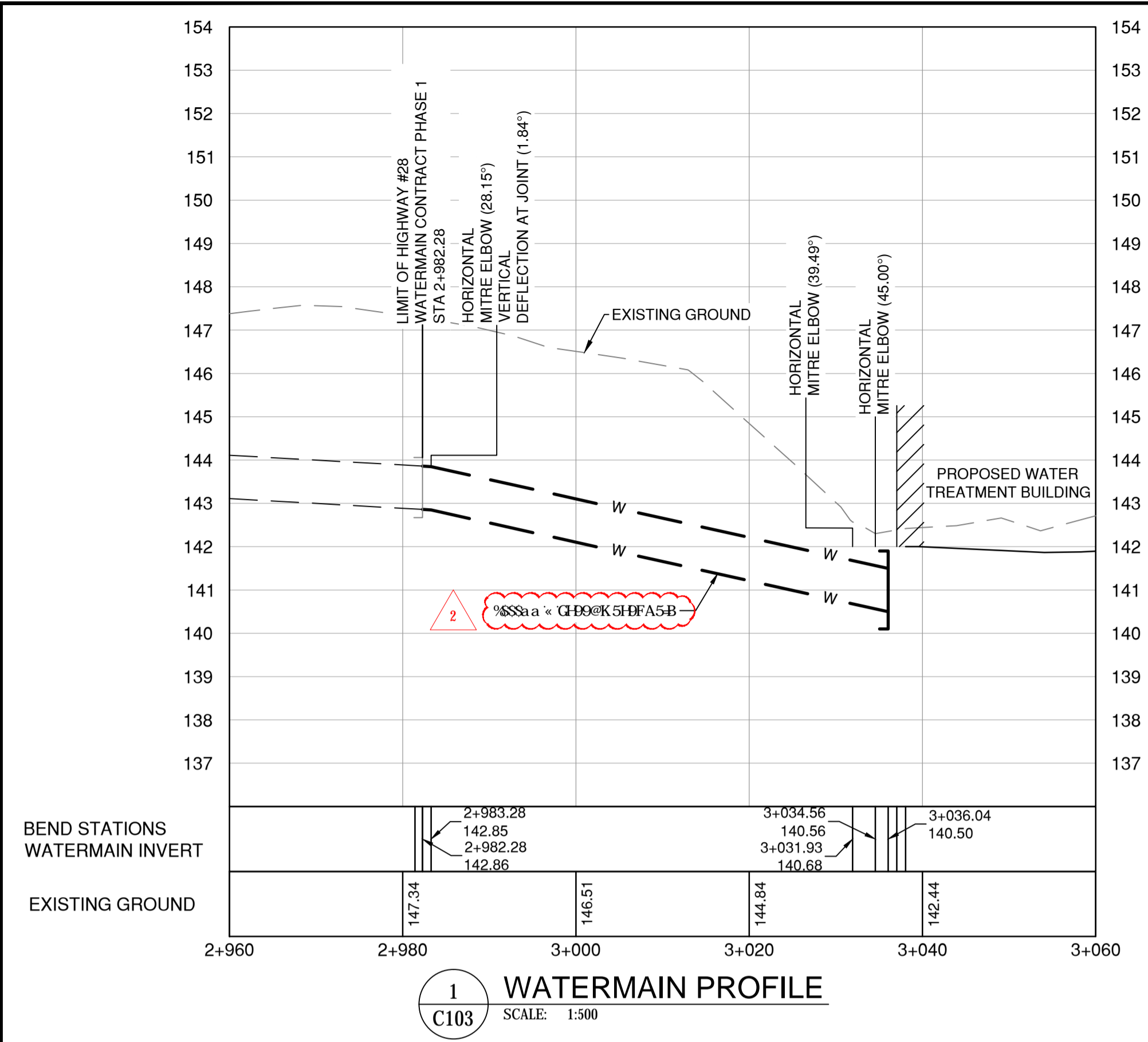
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APPROVED: AG	DATE: 16/09/23

400-555 Yee Road  
Victoria, BC V9A 6X5  
www.stantec.com

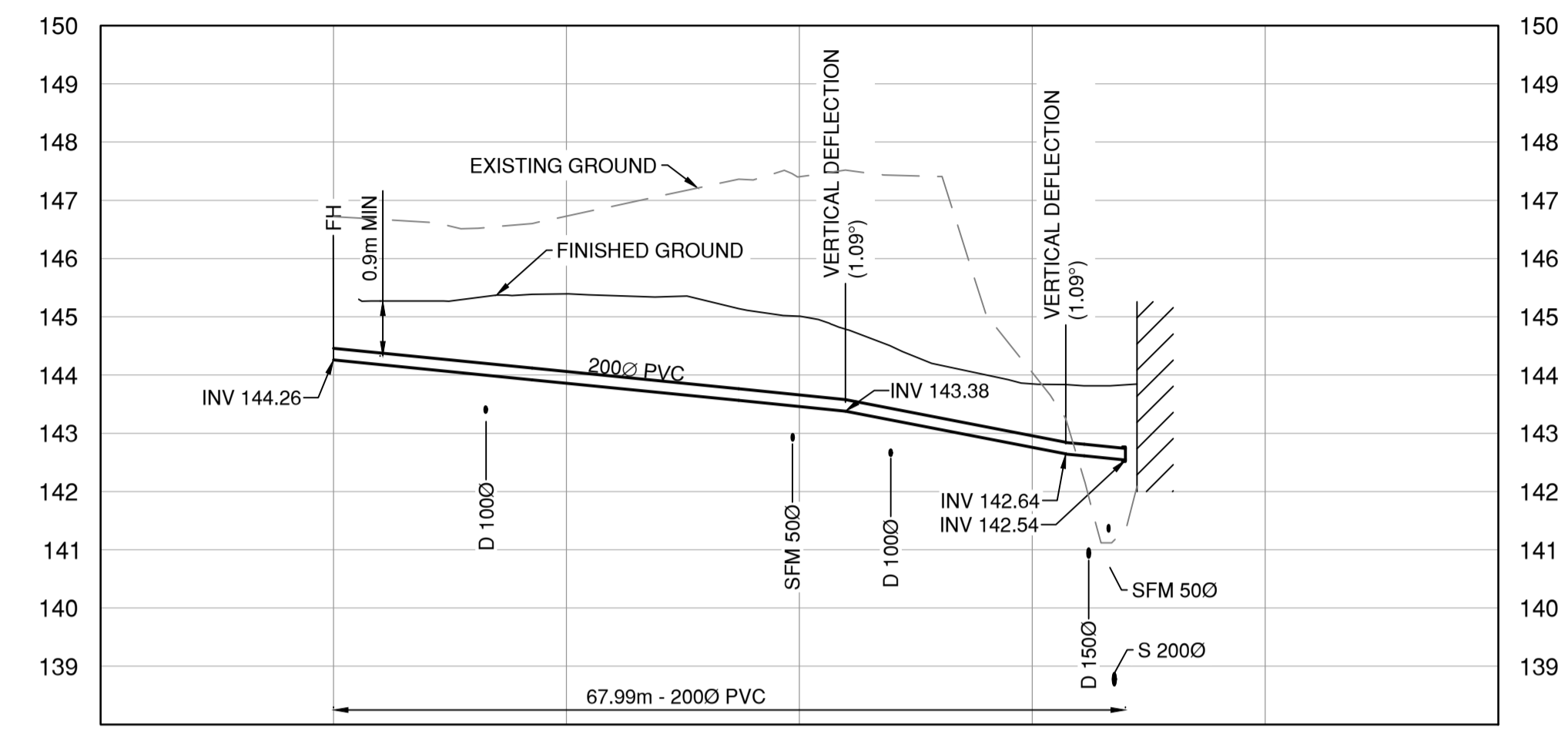
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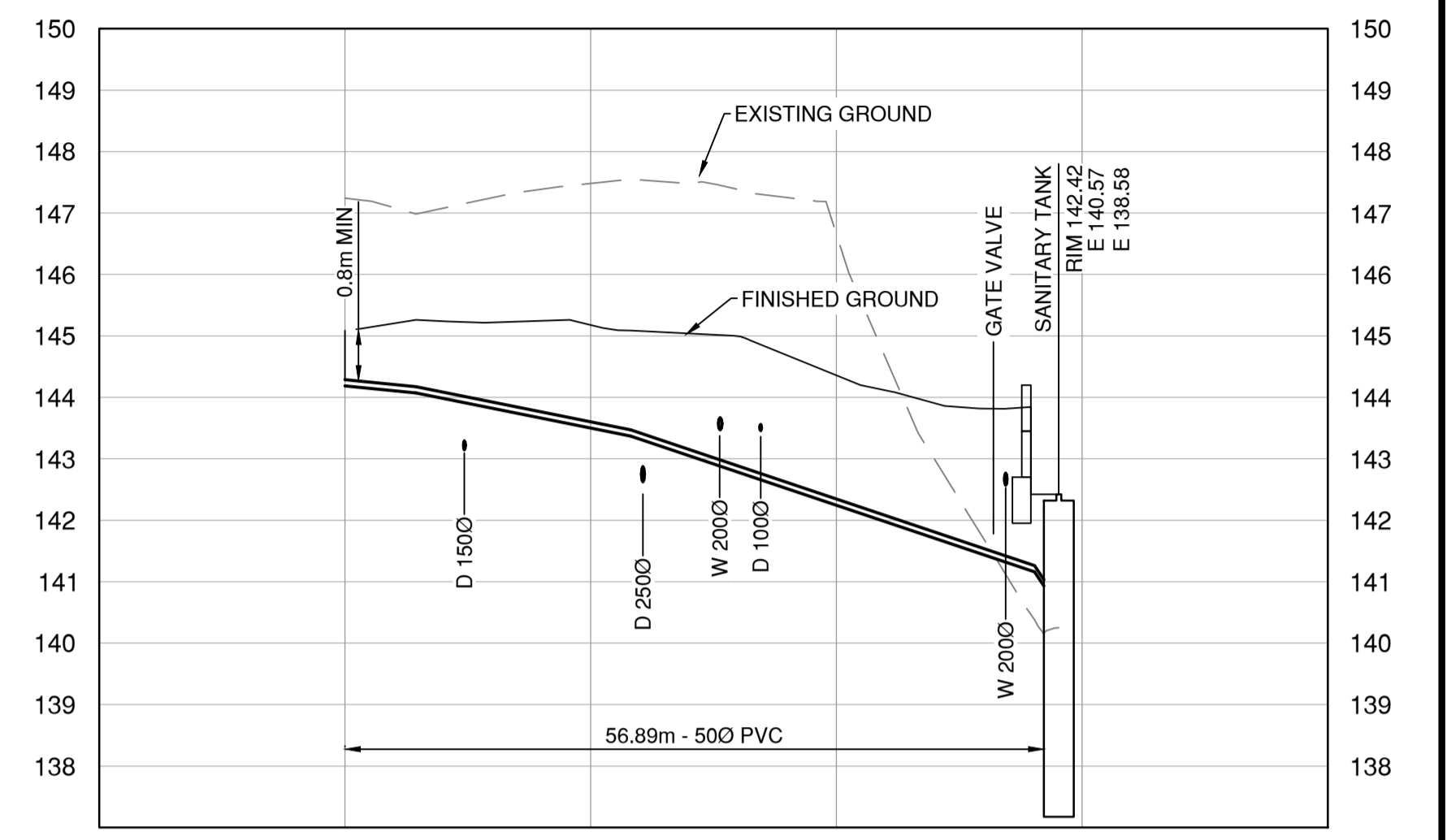
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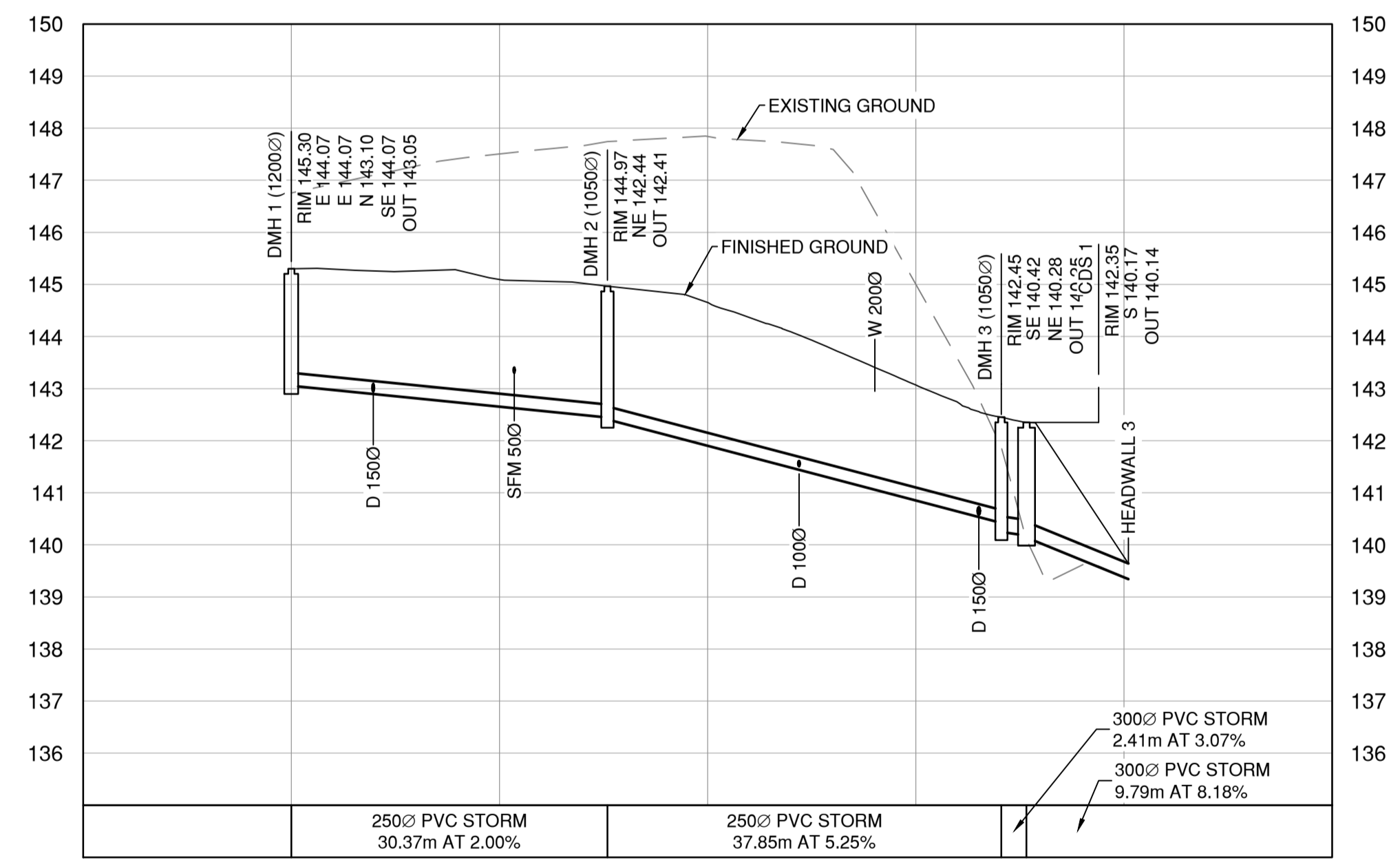
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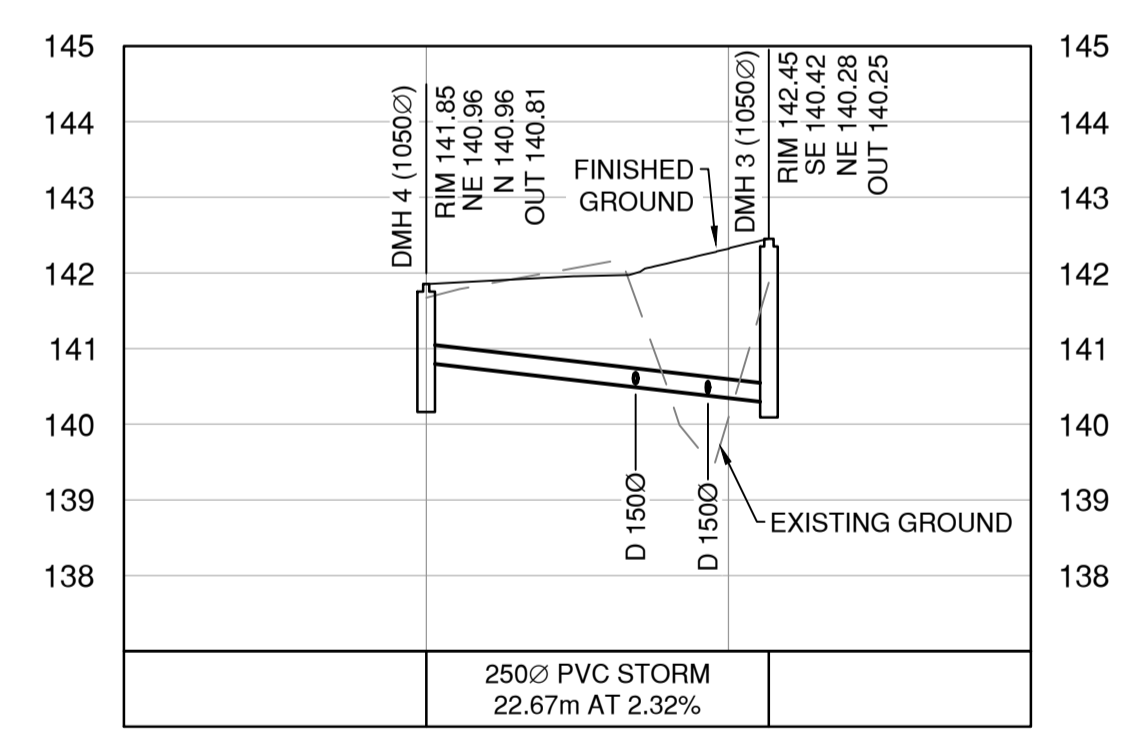
**2 FIRE HYDRANT SUPPLY PROFILE**  
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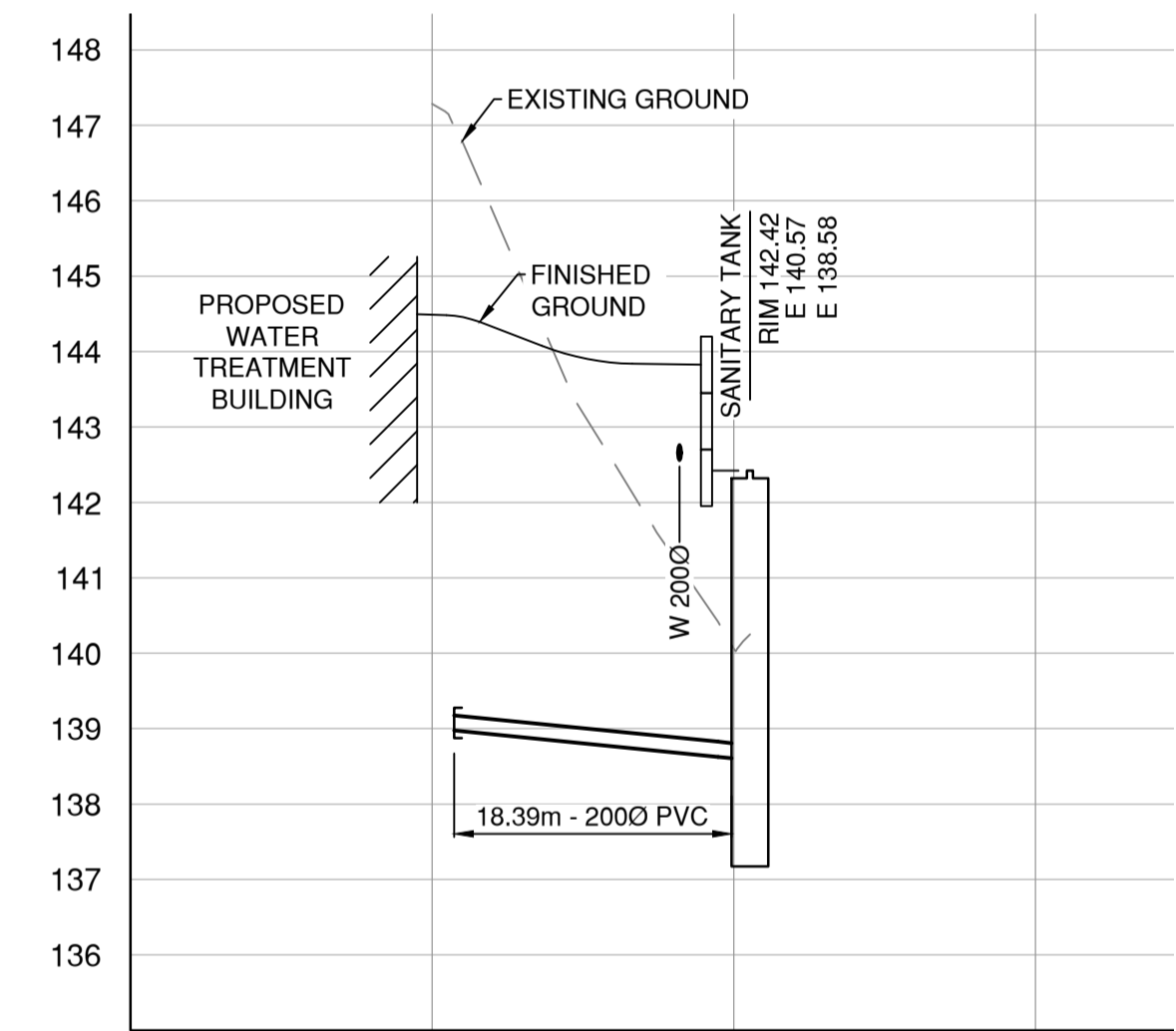
**3 SANITARY FORCEMAIN PROFILE**  
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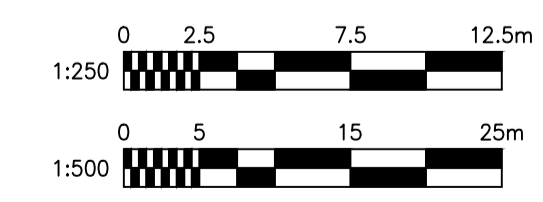
**4 DRAIN PROFILE: DMH 1 TO HEADWALL 3**  
SCALE: 1:500



**5 DRAIN PROFILE: DMH 4 TO DMH 3**  
SCALE: 1:500



**6 SANITARY PROFILE**  
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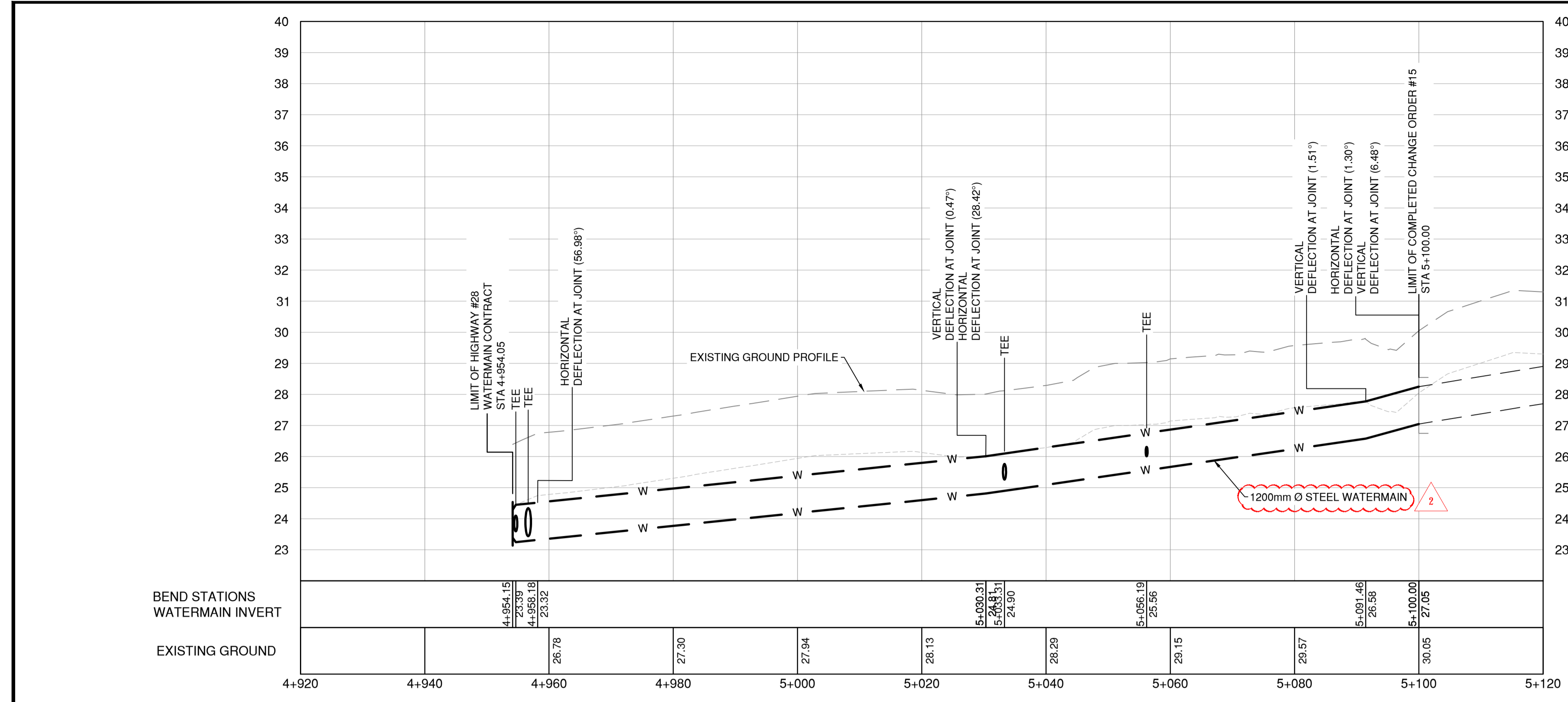
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CHECKED: AG	DATE: 16/09/23
APPROVED: AG	DATE: 16/09/23

TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	DRAWING NO. 15-508- C105
UTILITY PROFILES	PROJECT: 112311316
	REV. 2

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**WATERMAIN PROFILE**  
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**CONSTRUCTION NOTES:**

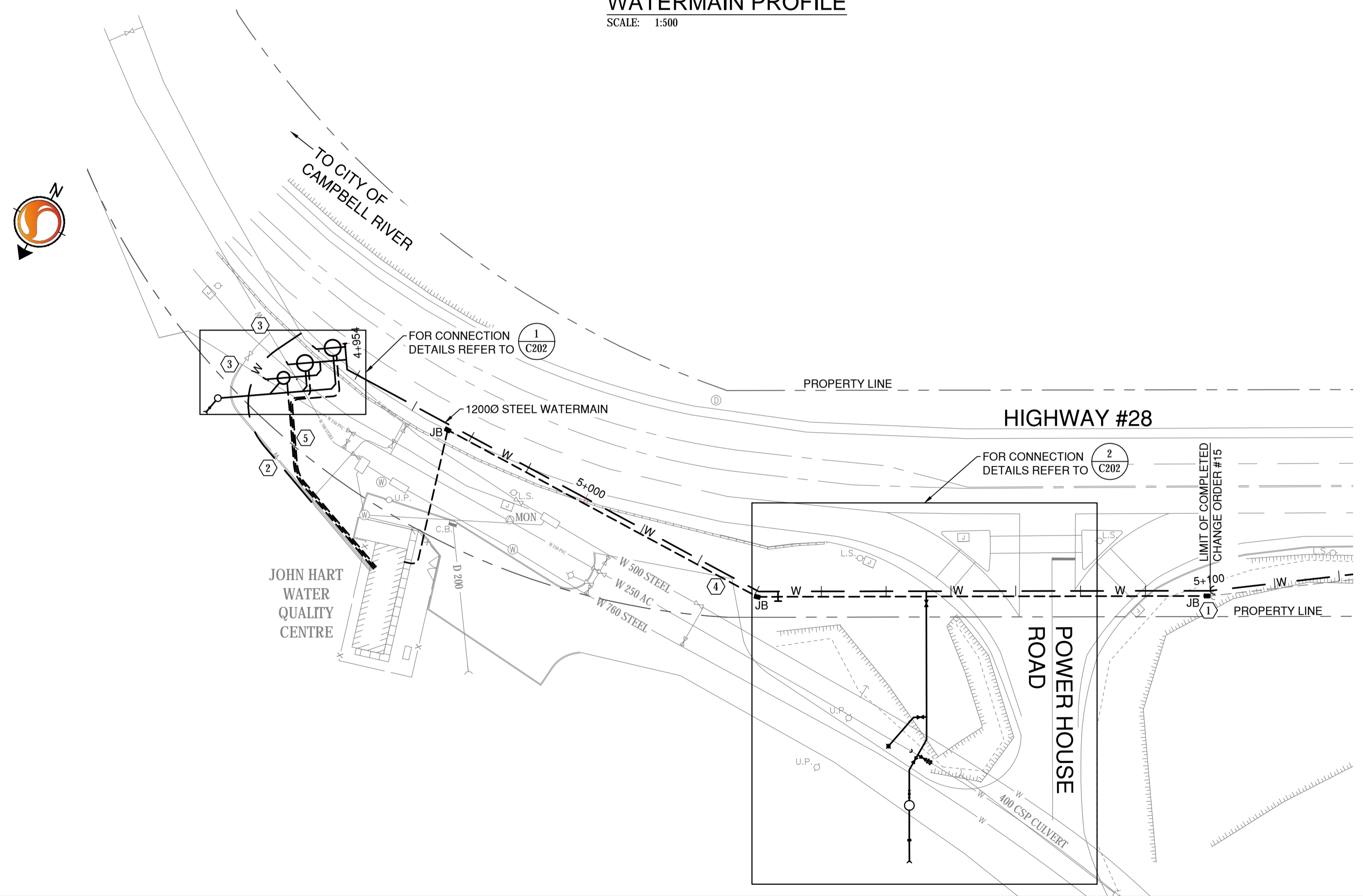
- ① MAKE CONNECTION TO EXISTING 1200Ø STEEL WATERMAIN.
- ② EXTEND 19mm Ø PE WATER SUPPLY LINES AS SHOWN. INSTALL CURB STOPS AT CONNECTION POINTS.
- ③ CONFIRM LOCATION OF WATER SUPPLY LINES.
- ④ INSTALL COMMUNICATION DUCT. REFER TO SHEET C301 FOR DETAILS.
- ⑤ ELECTRICAL CONDUIT. REFER TO ELECTRICAL FOR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



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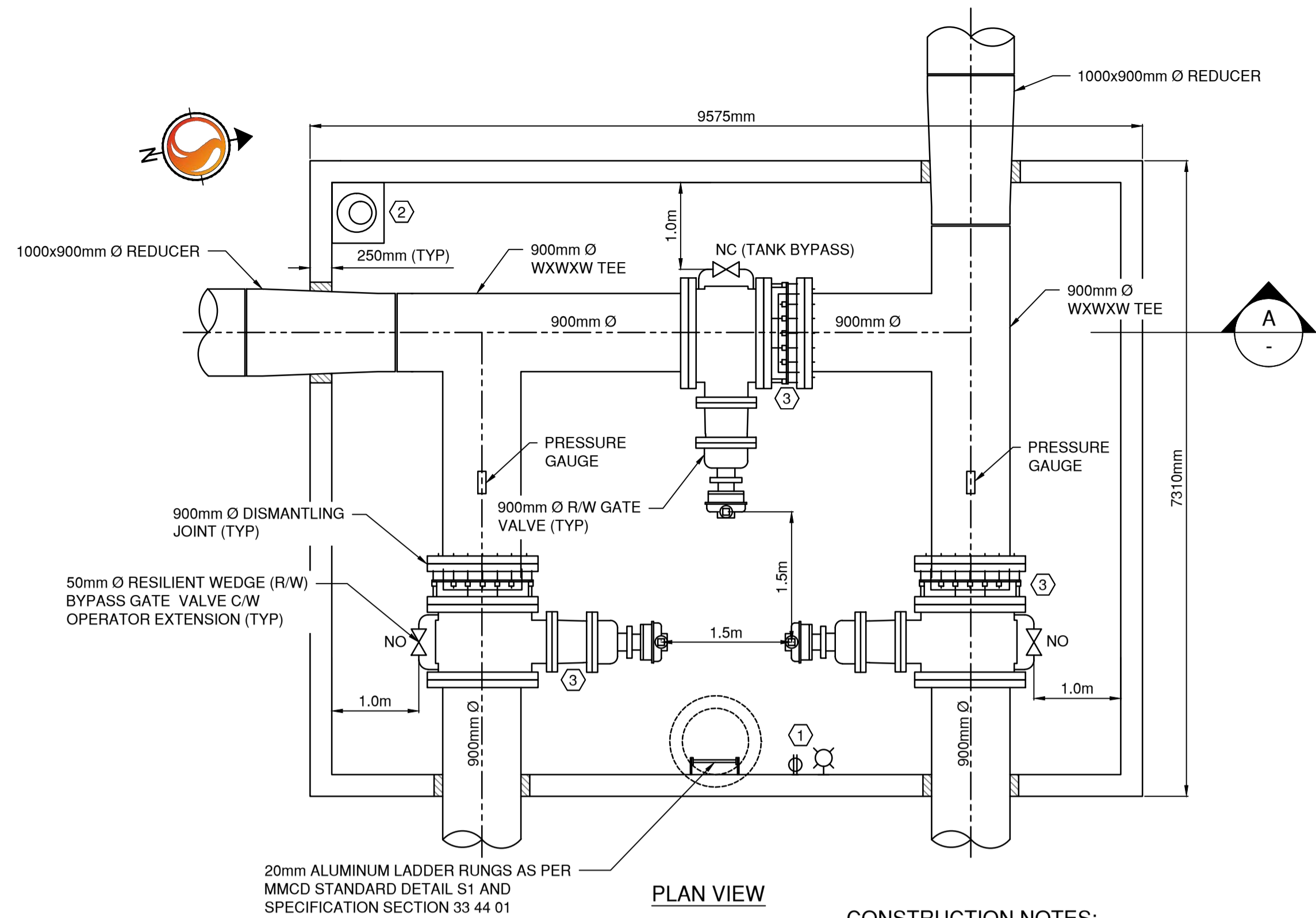
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1	ISSUED FOR TENDER	AG	16/09/02		

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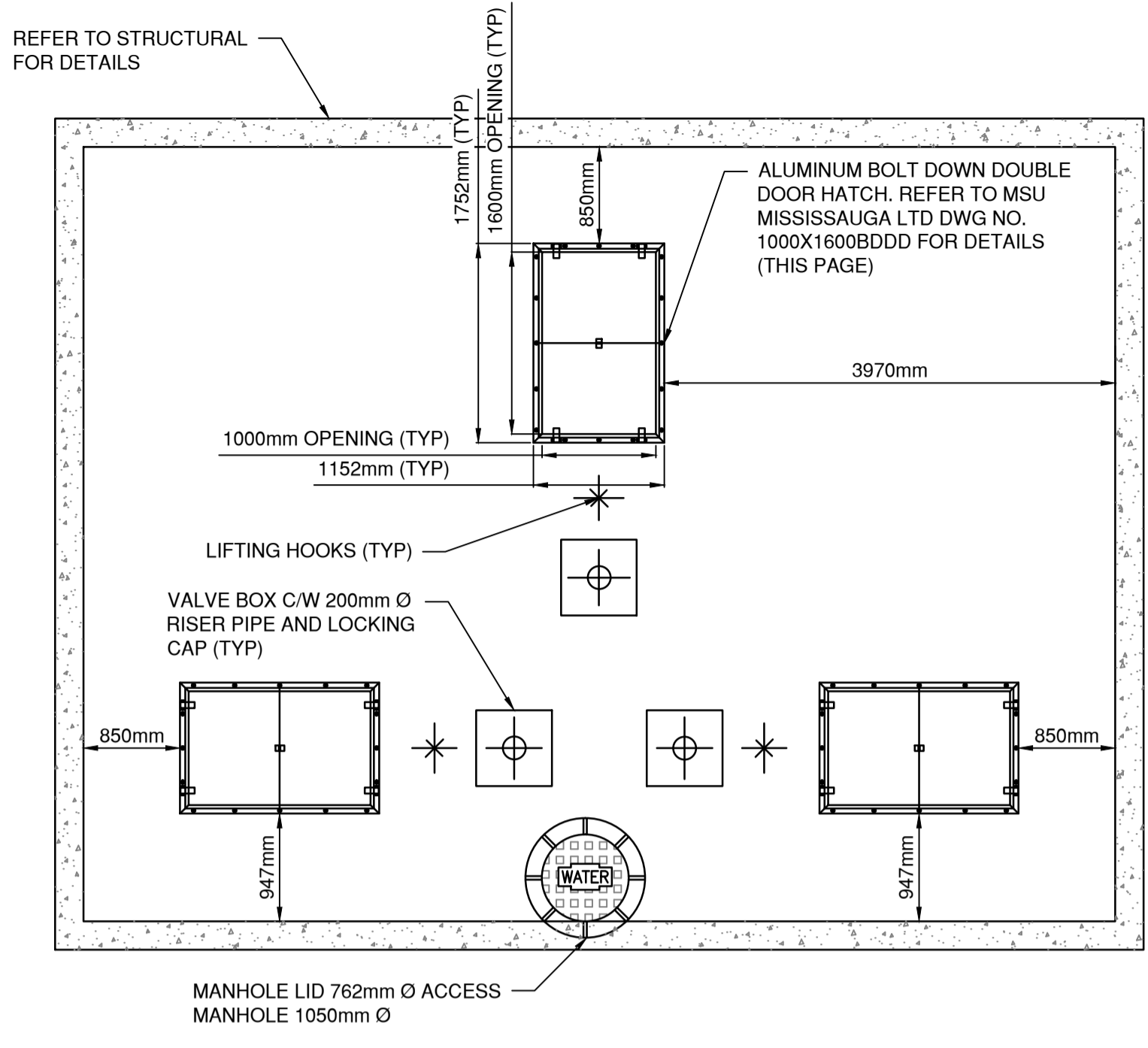
**Stantec**
  
 400-655 Tye Road
   
 Victoria, BC V9A 6X5
   
[www.stantec.com](http://www.stantec.com)

TITLE:	PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING – CONTRACT 2	DRAWING NO.:	15-508- C201
		PROJECT:	112311316
		REV.	2

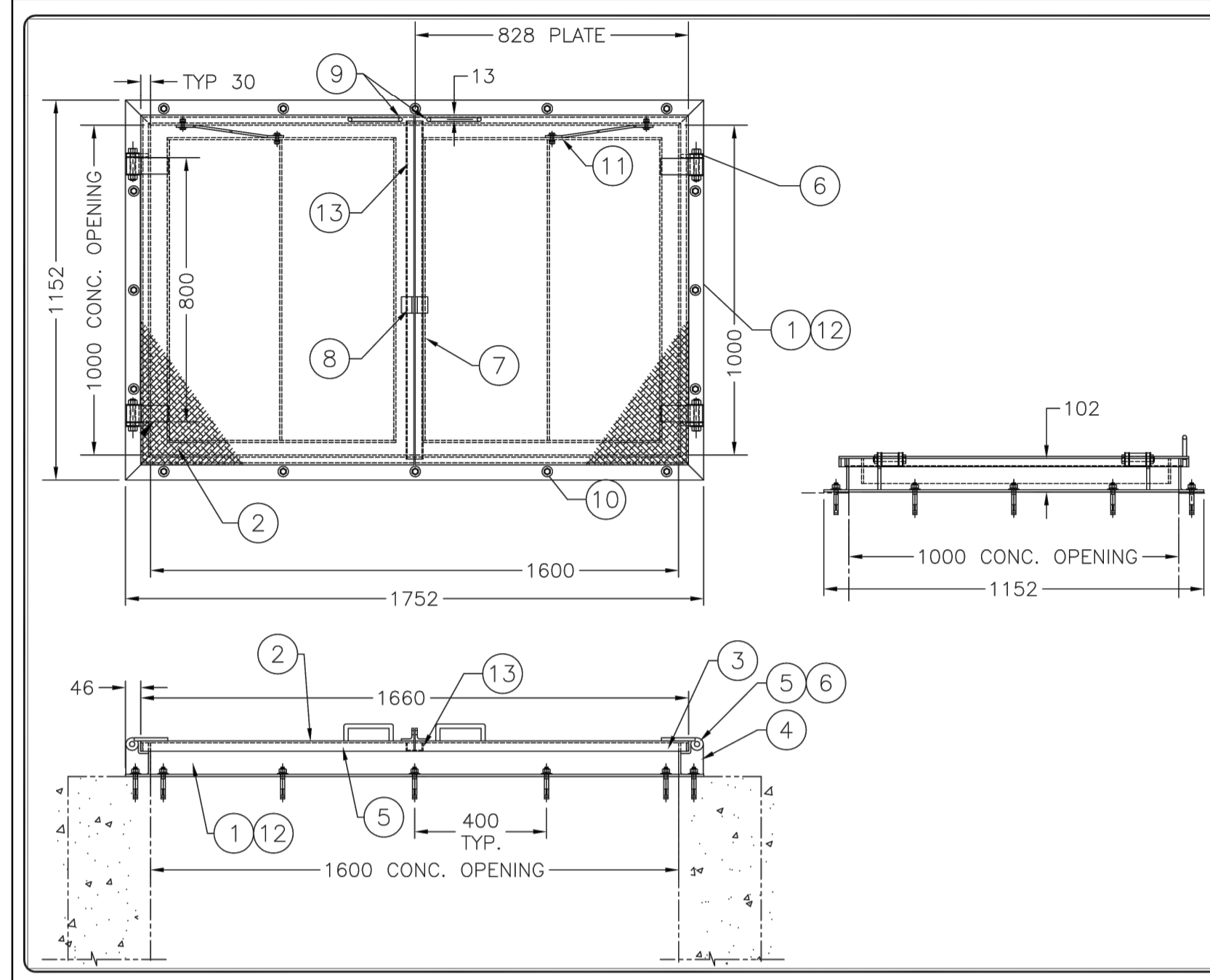
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PLAN VIEW



ROOF PLAN



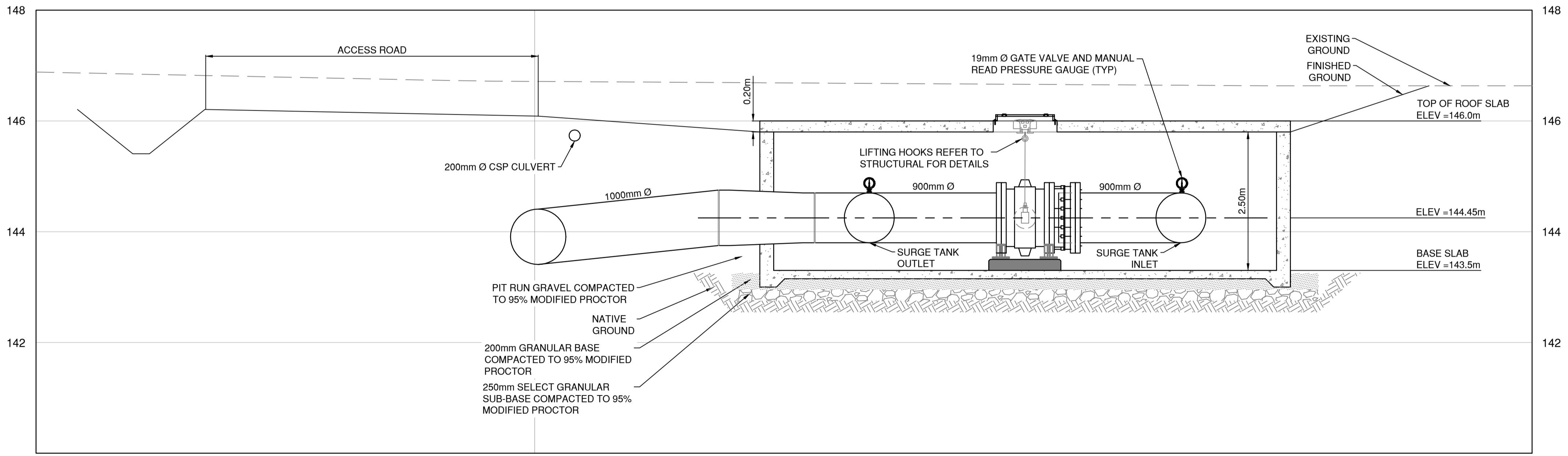
2 ALUMINUM HATCH  
SCALE: NTS

CONSTRUCTION NOTES:

- ① PROVIDE EXPLOSION PROOF 20 AMP RFI RECEPTACLE AND LIGHT
- ② 600mm x 600mm x 300mm SUMP WITH LIBERTY 1/4 HP STAINLESS STEEL UTILITY SUMP PUMP C/W FLOATS AND 50mm Ø LINE TO DITCH
- ③ PROVIDE CONCRETE VALVE SUPPORTS AT ALL VALVES

GENERAL NOTES:

- 1. ALL VALVES AND DISMANTLING JOINTS TO BE PRESSURE RATED FOR A WORKING PRESSURE OF 150psi. CONTRACTOR TO PROVIDE SHOP DRAWINGS PRIOR TO CONSTRUCTION.
- 2. ALL PENETRATIONS THROUGH VALVE CHAMBER WALLS TO BE WATERTIGHT.
- 3. 900mm Ø R/W GATE VALVES TO BE OWNER SUPPLIED.



A SECTION  
SCALE: 1:50

1 ISOLATION VALVE CHAMBER  
SCALE: 1:50

MSU MISSISSAUGA LTD.		
#	QTY.	DESCRIPTION
1	4	ALUMINUM 102x76x3.5mm ANGLE FRAME LVL
2	2	ALUMINUM 80x15-15 5.4mm THK. HEAD PLATE
3	6	ALUMINUM 6.4x25.4mm HEAD PLATE BRIFTERS
4	4	ALUMINUM 150mm THK. PLATE
5	4	ALUMINUM 80x15-15 38mm SOLID ROD
6	4	STAINLESS 316 3/8" x 3" TYP. HEX BOLT C/W WELON INSERT LOCK NUT
7	10	ALUMINUM 76x18.25mm FLAT BAR REINFORCING
8	2	ALUMINUM 380x38x4mm ANGLE 303mm LS. LOCK THE LOCK THE HOLE
9	2	ALUMINUM 130mm ROD WELDED HANDLE
10	16	STAINLESS 1/4" x 3" 1/4" WEDGE ANCHOR C/W NUT, FLAT AND LOCK WASHERS
11	2	STAINLESS 80 WELD SPCL. ANCH
12	4	BLACK REINFORCING 193x3mm THK. PERMETER GARIST FASTENED U/S FRAME
13	1	ALUMINUM 150x150x10mm SQUARE SUPPORT TO BE WELDED TO 1000mm CONC. OPENING

NOTE: 1) ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL RECEIVE 2 COATS OF BUTYLMASTIC PAINT.  
2) WELDING SHALL CONFORM TO CSA W47.2 & CSA W52.2.  
3) GRINDING ROUGH EDGES SMOOTH. WELDED SURFACES REMAIN AS WELDED.

PROJECT LOCATION	
CONTRACTOR	
ENGINEER	
DATE	16/09/23
SCALE	1:50

2 ALUMINUM HATCH  
SCALE: NTS

NOT FOR CONSTRUCTION

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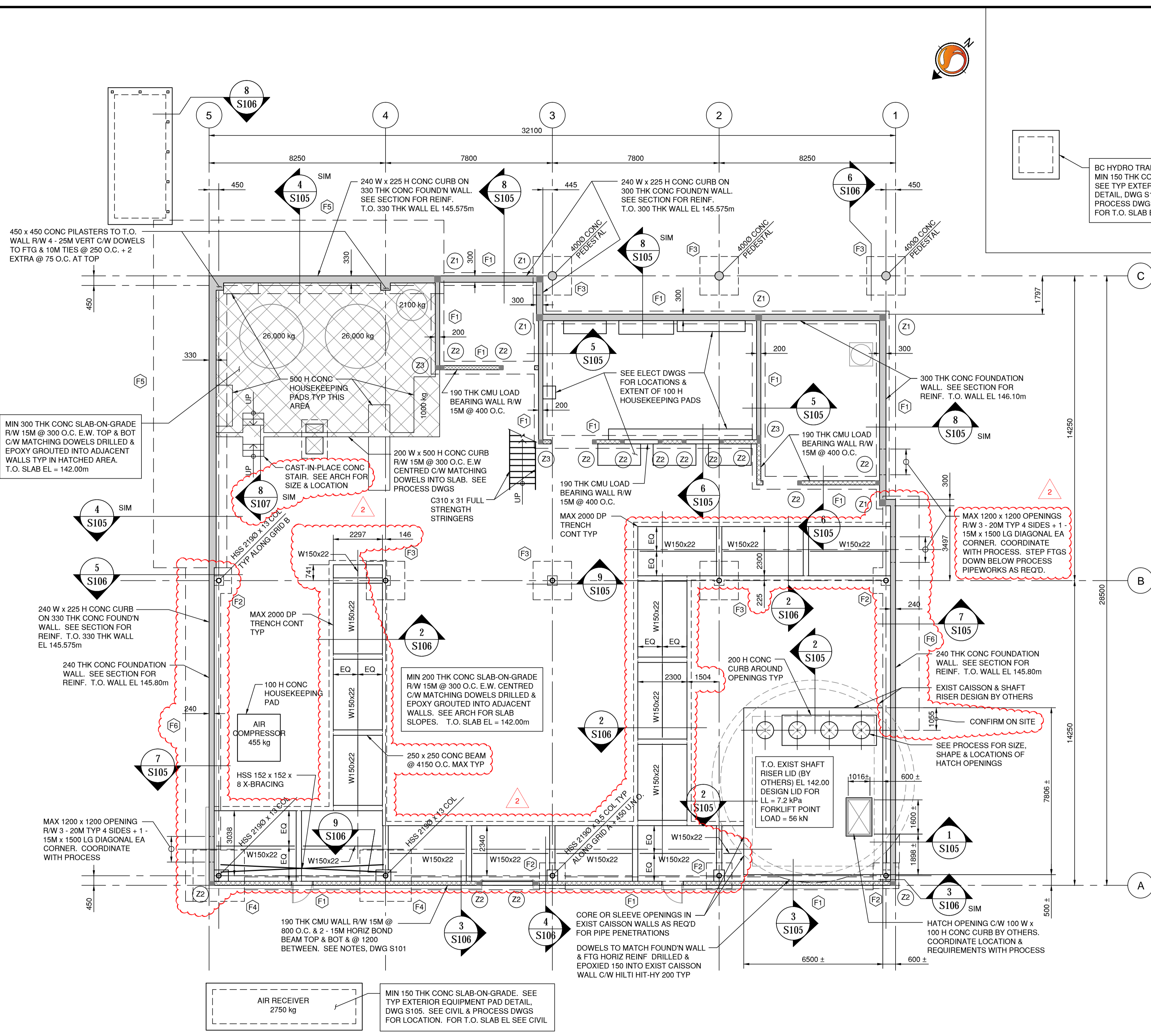
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1	ADDENDUM 2	AG	16/09/23		

DESIGNED: SS	SCALE: AS NOTED
DRAWN: OB	DATE: 16/09/23
CHECKED: AG	DATE: 16/09/23
APPROVED: AG	DATE: 16/09/23

400-655 Tye Road  
Victoria, BC V9A 6X5  
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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	DRAWING NO. 15-508- C305
CIVIL DETAILS	PROJECT: 112311316
	REV. 1

DRAWING PATH: \\CD1208-F04\workgroup\112311316\112311316\_V\_drawing\current\pump\_station\ch1\11316\_C501.dwg Tab: C305 Sep 23, 2016 2:28:31pm



**1 FOUNDATION PLAN - LEVEL 0**  
SCALE: 1:100

**2 ELECTRICAL SKID & TRANSFORMER PAD PLAN**  
SCALE: 1:100

- FOUNDATION PLAN NOTES:**
- SEE DRAWING S101 FOR GENERAL STRUCTURAL NOTES, SYMBOL LEGEND AND ABBREVIATIONS.
  - TYPICAL TOP OF SLAB-ON-GRADE ELEVATION = 142.00m (GEODETIC) U.N.O. ON PLAN.
  - SEE DRAWING S103 FOR X-BRACING ELEVATION.
  - ALL COLUMN FOUNDATIONS ARE CENTRED ON COLUMNS, AND COLUMNS ARE CENTRED ON GRIDLINES U.N.O.
  - REFER TO ARCHITECTURAL DRAWINGS FOR DOOR, WINDOW AND ROUGH OPENING LOCATIONS AND DIMENSIONS. COORDINATE FOUNDATION WALL / CURB HEIGHTS AND FOUNDATION DETAILS AS REQUIRED.
  - REFER TO ARCHITECTURAL DRAWINGS FOR ALL SLAB RECESS LOCATIONS.
  - COORDINATE ALL DIMENSIONS FOUND ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL OTHER DIMENSIONS.
  - SOIL SHALL BE IMPROVED AS REQUIRED BY THE GEOTECHNICAL ENGINEER. REFER TO THE GEOTECHNICAL REPORT.
  - WHERE FOOTING REINFORCING IS NOT NOTED, PROVIDE 15M @ 300 O.C. E.W. TOP AND BOTTOM.
  - SEE DRAWINGS S105 & S106 FOR STEEL COLUMN BASE PLATE AND ANCHOR BOLT INFORMATION.

**ZONE REINFORCING SCHEDULE**

TYPE	VERT REINFORCING	TIES
Z1	4 - 20M	10M @ 150 O.C.
Z2	2 - 20M IN LAST 2 CELLS (4 TOTAL)	
Z3	4 - 15M	10M @ 100 O.C.

**FOOTING SCHEDULE**

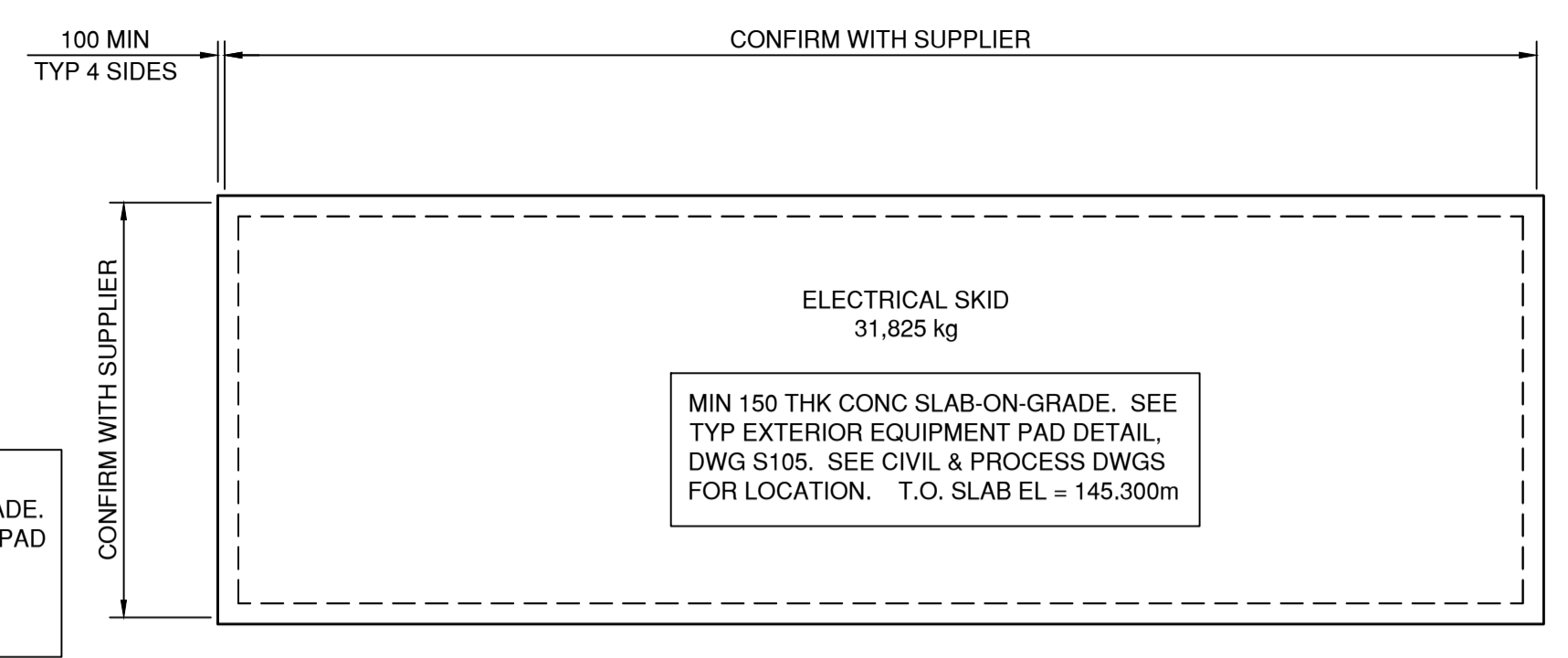
TYPE	SIZE	BOTTOM REINFORCING U.N.O.
F1	600 x 250 DP. STRIP FOOTING	2 - 15M CONT
F2	1650 x 1650 x 300 DP.	6 - 15M EA WAY
F3	2100 x 2100 x 375 DP.	9 - 15M EA WAY
F4	2400 x 2400 x 400 DP.	8 - 20M EA WAY TOP & BOTTOM
F5	3430 x 380 DP. STRIP FOOTING	SEE SECTION 4, DWG S105
F6	1640 x 300 DP. STRIP FOOTING	SEE SECTION 7, DWG S105

NOTE: ALL ZONE VERT REINFORCING C/W MATCHING DOWELS HOOKED INTO FOOTINGS C/W TENSION LAPS

- LEGEND**
- CONC BLOCK (CMU) WALL, SEE REINFORCED MASONRY NOTES ON DWG S101 FOR TYPICAL REINFORCING UNLESS NOTED OTHERWISE.
  - F1 - INDICATES FOOTING TYPE, SEE SCHEDULE.
  - Z1 - INDICATES ZONE REINFORCING TYPE, SEE SCHEDULE.
  - S.F. - INDICATES "STEPPED FOOTING", SEE DETAIL ON DWG S105 UNLESS DETAILED OTHERWISE.



EL. 100m (PROJECT) = EL. 142.0m GEODETIC



**2 ELECTRICAL SKID & TRANSFORMER PAD PLAN**  
SCALE: 1:100

- FOUNDATION PLAN NOTES:**
- SEE DRAWING S101 FOR GENERAL STRUCTURAL NOTES, SYMBOL LEGEND AND ABBREVIATIONS.
  - TYPICAL TOP OF SLAB-ON-GRADE ELEVATION = 142.00m (GEODETIC) U.N.O. ON PLAN.
  - SEE DRAWING S103 FOR X-BRACING ELEVATION.
  - ALL COLUMN FOUNDATIONS ARE CENTRED ON COLUMNS, AND COLUMNS ARE CENTRED ON GRIDLINES U.N.O.
  - REFER TO ARCHITECTURAL DRAWINGS FOR DOOR, WINDOW AND ROUGH OPENING LOCATIONS AND DIMENSIONS. COORDINATE FOUNDATION WALL / CURB HEIGHTS AND FOUNDATION DETAILS AS REQUIRED.
  - REFER TO ARCHITECTURAL DRAWINGS FOR ALL SLAB RECESS LOCATIONS.
  - COORDINATE ALL DIMENSIONS FOUND ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL OTHER DIMENSIONS.
  - SOIL SHALL BE IMPROVED AS REQUIRED BY THE GEOTECHNICAL ENGINEER. REFER TO THE GEOTECHNICAL REPORT.
  - WHERE FOOTING REINFORCING IS NOT NOTED, PROVIDE 15M @ 300 O.C. E.W. TOP AND BOTTOM.
  - SEE DRAWINGS S105 & S106 FOR STEEL COLUMN BASE PLATE AND ANCHOR BOLT INFORMATION.

**ZONE REINFORCING SCHEDULE**

TYPE	VERT REINFORCING	TIES
Z1	4 - 20M	10M @ 150 O.C.
Z2	2 - 20M IN LAST 2 CELLS (4 TOTAL)	
Z3	4 - 15M	10M @ 100 O.C.

**FOOTING SCHEDULE**

TYPE	SIZE	BOTTOM REINFORCING U.N.O.
F1	600 x 250 DP. STRIP FOOTING	2 - 15M CONT
F2	1650 x 1650 x 300 DP.	6 - 15M EA WAY
F3	2100 x 2100 x 375 DP.	9 - 15M EA WAY
F4	2400 x 2400 x 400 DP.	8 - 20M EA WAY TOP & BOTTOM
F5	3430 x 380 DP. STRIP FOOTING	SEE SECTION 4, DWG S105
F6	1640 x 300 DP. STRIP FOOTING	SEE SECTION 7, DWG S105

NOTE: ALL ZONE VERT REINFORCING C/W MATCHING DOWELS HOOKED INTO FOOTINGS C/W TENSION LAPS

- LEGEND**
- CONC BLOCK (CMU) WALL, SEE REINFORCED MASONRY NOTES ON DWG S101 FOR TYPICAL REINFORCING UNLESS NOTED OTHERWISE.
  - F1 - INDICATES FOOTING TYPE, SEE SCHEDULE.
  - Z1 - INDICATES ZONE REINFORCING TYPE, SEE SCHEDULE.
  - S.F. - INDICATES "STEPPED FOOTING", SEE DETAIL ON DWG S105 UNLESS DETAILED OTHERWISE.



EL. 100m (PROJECT) = EL. 142.0m GEODETIC

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DRAWING PATH: V:\11231316\Drawings\Current\station\structural\11231316\_s102.dwg Tab: S102 Sep 23, 2016 10:27:25am



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.

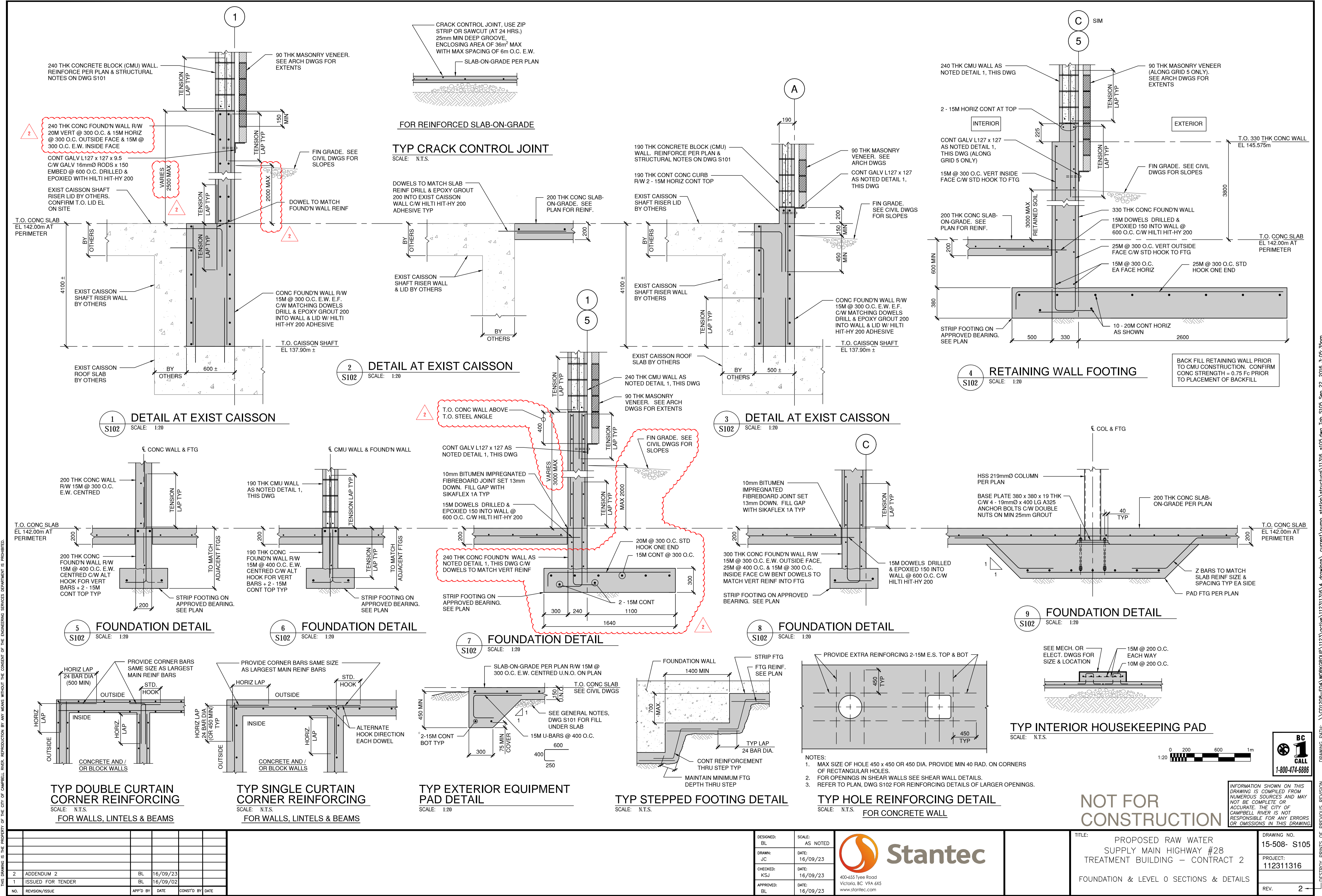
NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTR'D BY	DATE
2	ADDENDUM 2	BL	16/09/23		
1	ISSUED FOR TENDER	BL	16/09/02		

DESIGNED: BL	SCALE: 1:100
DRAWN: JC	DATE: 16/09/23
CHECKED: KSJ	DATE: 16/09/23
APPROVED: BL	DATE: 16/09/23

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2  
FOUNDATION PLAN - LEVEL 0

DRAWING NO. 15-508- S102
PROJECT: 11231316
REV. 2



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DRAWING PATH: \\CD\208-FO4\WORKGROUP\123\active\11231316\4\_drawing\current\pump\_station\structural\11316\_s105.dwg Tab S105 Sep 22, 2016 3:05:55pm

NO.	REVISION/ISSUE	APP'D BY	DATE	CONSTD BY	DATE
2	ADDENDUM 2	BL	16/09/23		
1	ISSUED FOR TENDER	BL	16/09/02		

DESIGNED:	BL	SCALE:	AS NOTED
DRAWN:	JC	DATE:	16/09/23
CHECKED:	KSJ	DATE:	16/09/23
APPROVED:	BL	DATE:	16/09/23

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TITLE:	PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2
DRAWING NO.	15-508- S105
PROJECT:	11231316
FOUNDATION & LEVEL 0 SECTIONS & DETAILS	
REV.	2

**NOT FOR CONSTRUCTION**

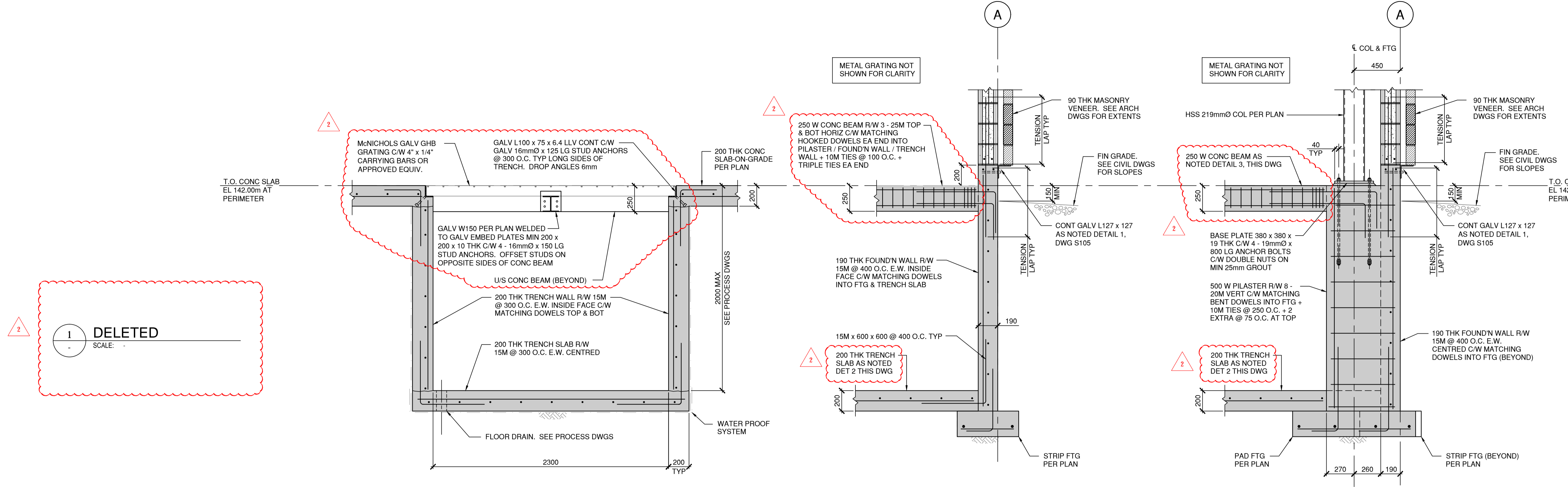
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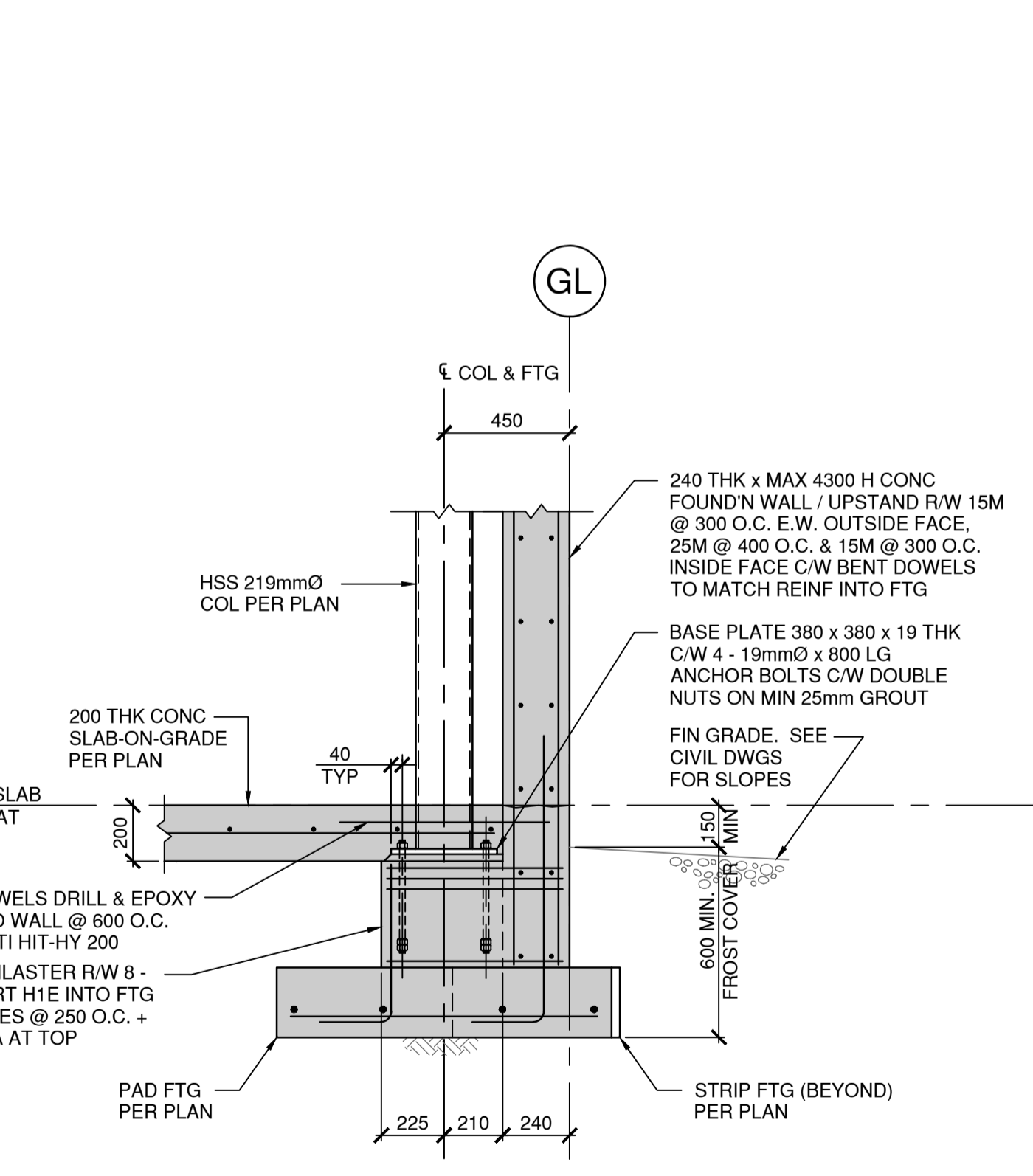
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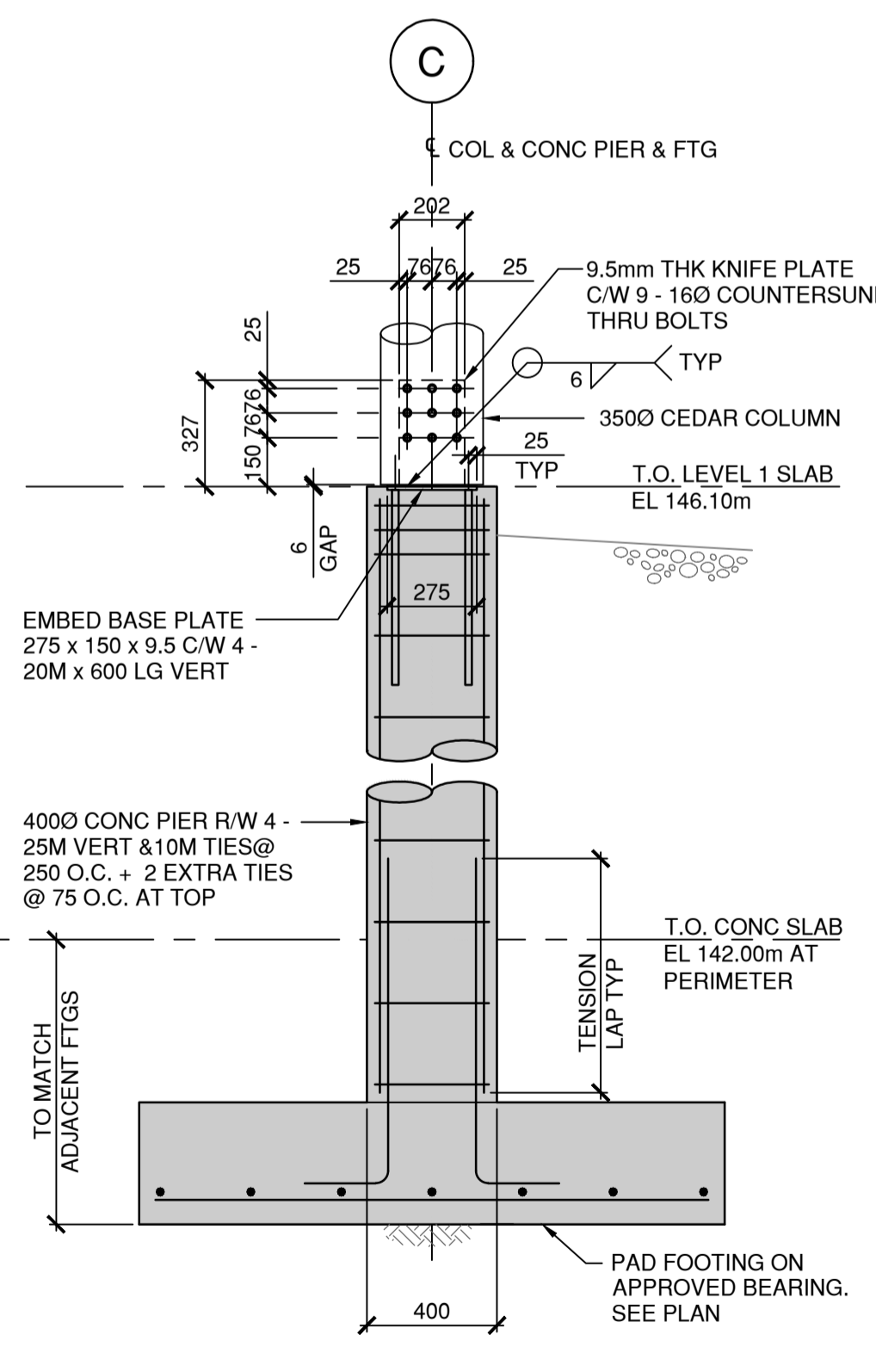
**2 TRENCH / SLAB-ON-GRADE SECTION**  
S102 SCALE: 1:20

**3 FOUNDATION DETAIL**  
S102 SCALE: 1:20

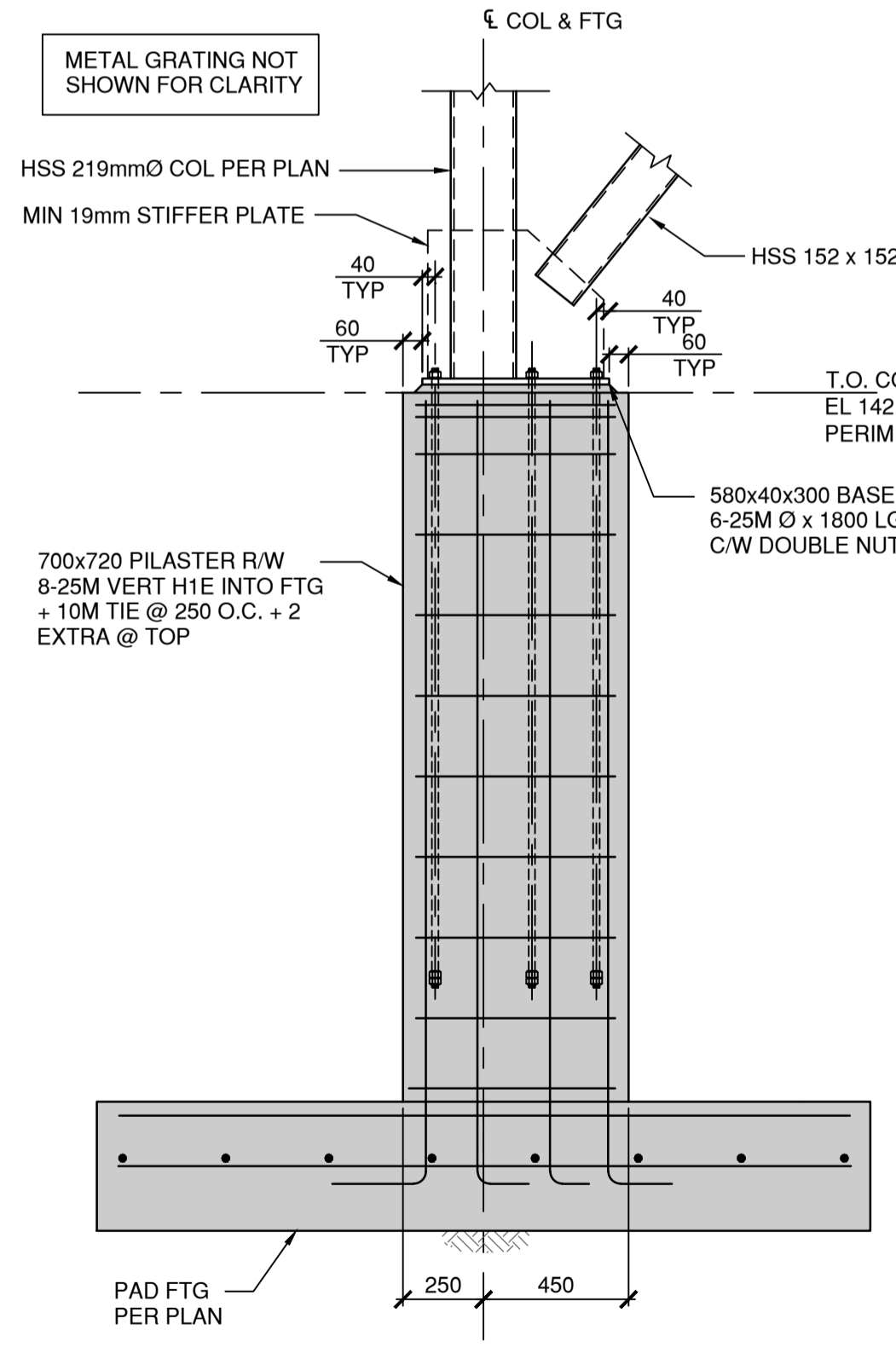
**4 FOUNDATION DETAIL**  
S102 SCALE: 1:20



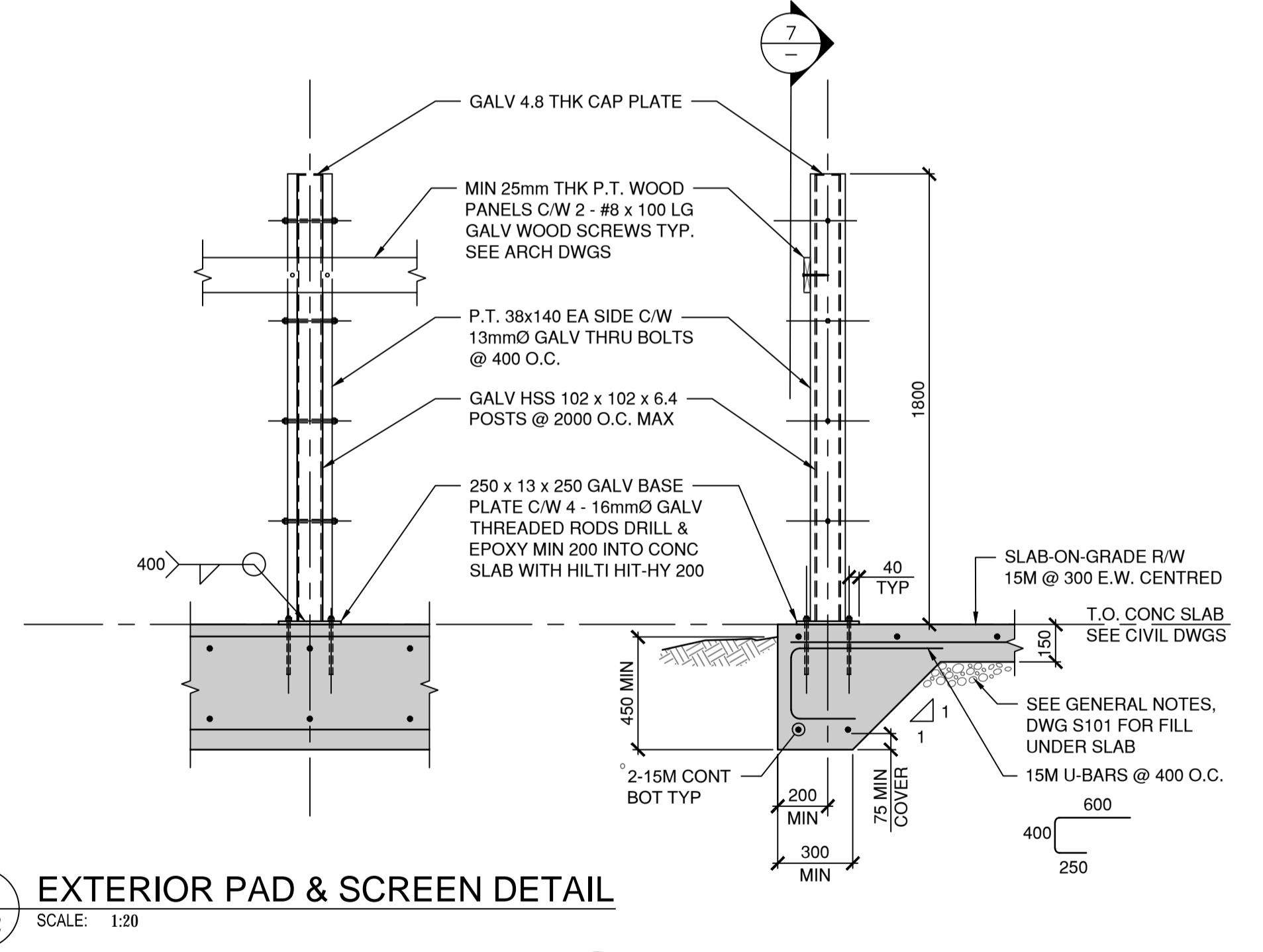
**5 FOUNDATION DETAIL**  
S102 SCALE: 1:20



**6 CONC PIER DETAIL**  
S102 SCALE: 1:20

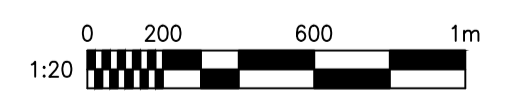


**9 CONCRETE PIER AT X-BRACE**  
S102 SCALE: 1:20



**7 EXTERIOR PAD & SCREEN DETAIL**  
S102 SCALE: 1:20

**8 EXTERIOR PAD & SCREEN DETAIL**  
S102 SCALE: 1:20



**NOT FOR CONSTRUCTION**

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.	REVISION/ISSUE	APP'D BY	DATE	CONST'D BY	DATE
2	ADDENDUM 2	BL	16/09/23		
1	ISSUED FOR TENDER	BL	16/09/02		

DESIGNED:	SCALE:
BL	AS NOTED
DRAWN:	DATE:
JC	16/09/23
CHECKED:	DATE:
KSJ	16/09/23
APPROVED:	DATE:
BL	16/09/23



TITLE:	DRAWING NO.
PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2	15-508- S106
FOUNDATION & LEVEL 0 SECTIONS & DETAILS	PROJECT:
	11231316
REV.	2

STRUCTURAL DESIGN NOTES

GENERAL

- 1 ALL CODES REFERENCED ARE TO BE THE LATEST VERSION AT THE DATE OF ISSUE.
2 DESIGN IS BASED ON THE BRITISH COLUMBIA BUILDING CODE 2012.
3 READ THESE DESIGN NOTES IN CONJUNCTION WITH THE CONTRACT SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS.
4 OBTAIN ENGINEER'S APPROVAL BEFORE CUTTING, BORING, OR SLEEVING LOAD-BEARING MEMBERS UNLESS NOTED OTHERWISE.
5 THE STRUCTURAL DRAWINGS ARE FOR THE COMPLETED PROJECT. STABILITY OF THE NEW STRUCTURE DURING CONSTRUCTION REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.
6 REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR SMALL OPENINGS, SLEEVES, RECESSES, DEPRESSIONS, SUMPS, TRENCHES, CURBS, HOUSEKEEPING PADS, EQUIPMENT BASES, AND SLOPES NOT INDICATED ON THE STRUCTURAL DRAWINGS.
7 OPENINGS AND SLEEVES INDICATED ON THE STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY. COORDINATE ALL OPENING LOCATIONS AND DIMENSIONS WITH THE APPROPRIATE CONSULTANT AND THE SUB-CONTRACTOR PRIOR TO CONSTRUCTION.
8 REVIEW ALL DRAWINGS AND CHECK DIMENSIONS PRIOR TO IMPLEMENTING THE WORK. REPORT ANY DISCREPANCIES TO THE CONSULTANT FOR CLARIFICATION BEFORE PROCEEDING.
9 NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO ANY REQUIRED SITE REVIEWS.

EXISTING STRUCTURES

- 1 NOTIFY ENGINEER OF ANY STRUCTURES OR SERVICES NOT SHOWN ON THE STRUCTURAL DRAWINGS.

DESIGN LOADS

- 1 UNLESS NOTED OTHERWISE, THE LOADS NOTED IN TABLES AND ON DRAWINGS ARE UNFACTORED.
2 CLIMATIC INFORMATION REFER TO CLIMATIC INFORMATION TABLE
3 SITE INFORMATION REFER TO SITE INFORMATION TABLE
4 DESIGN LOADS REFER TO DESIGN LOADS TABLE
5 LATERAL LOADS
5.1 FOR CLIMATIC INFORMATION REFER TO CLIMATIC INFORMATION TABLE SHEAR WALLS.
5.2 SEE FORCE MODIFICATION FACTORS TABLE
6 CONSTRUCTION LOADS SHALL NOT EXCEED THE LOADS NOTED ON THE DRAWINGS.

FOUNDATION AND GEOTECHNICAL NOTES

- 1 FOUNDATION DESIGN IS BASED ON ASSUMED BEARING CAPACITY SHOWN BELOW. A GEOTECHNICAL ENGINEER SHALL VERIFY ALL ASSUMPTIONS PRIOR TO PLACEMENT OF CONCRETE. FOUNDATIONS MAY REQUIRE RE-DESIGN IF POOR SOIL CONDITIONS ARE ENCOUNTERED DURING CONSTRUCTION.
2 SPREAD AND STRIP FOOTINGS HAVE BEEN DESIGNED BASED ON FACTORED BEARING = 100 kPa AND ULTIMATE BEARING = 150 kPa.
3 BEAR ALL FOOTINGS ON UNDISTURBED SOIL OR ENGINEERED FILL AS INDICATED IN GEOTECHNICAL REPORT.
4 BRING OVER-EXCAVATION AND CAVITIES IN THE FOOTING BASE UP TO THE REQUIRED LEVELS WITH 10 MPa CONCRETE OR ENGINEERED FILL AS INDICATED IN GEOTECHNICAL REPORT.
5 REMOVE ALL ORGANIC MATERIAL FROM THE BUILDING AREA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
6 REMOVE ALL LOOSE OR SATURATED MATERIAL AND GROUNDWATER FROM THE BASE OF FOOTING EXCAVATIONS BY APPROVED METHODS PRIOR TO PLACING FOUNDATIONS.
7 PROTECT EXCAVATIONS BY APPROVED METHODS FOR FOOTINGS FROM RAIN, SNOW, FREEZING TEMPERATURES, STANDING WATER, LOSS OF MOISTURE AND DEGRADATION.
8 BEARING SURFACES TO BE INSPECTED IN THE FIELD BY A PROFESSIONAL GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA PRIOR TO PLACING CONCRETE. IMPROVE SUBGRADE AS DIRECTED IN WRITING BY A PROFESSIONAL GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA.
9 GEOTECHNICAL TESTING AGENCY TO BE APPROVED BY AND RESPONSIBLE TO THE ENGINEER AND PAID FOR BY THE OWNER.
10 UNLESS OTHERWISE SHOWN ON PLAN, FOUNDATION ELEMENTS ARE TO BE CENTERED UNDER WALLS, GRADE BEAMS, AND COLUMNS.
11 PROVIDE DOWELS FROM FOOTINGS TO MATCH ALL VERTICAL WALL REINFORCEMENT OR AS NOTED ON THE DRAWINGS.
12 ENGINEERED FILL MATERIAL, COMPACTION AND MAXIMUM THICKNESS OF ENGINEERED FILL TO BE APPROVED BY GEOTECHNICAL ENGINEER.
13 ALL FILL MATERIAL UNDER SLAB AS DETAILED ON DRAWINGS D3 AND D4.

CAST-IN-PLACE REINFORCED CONCRETE

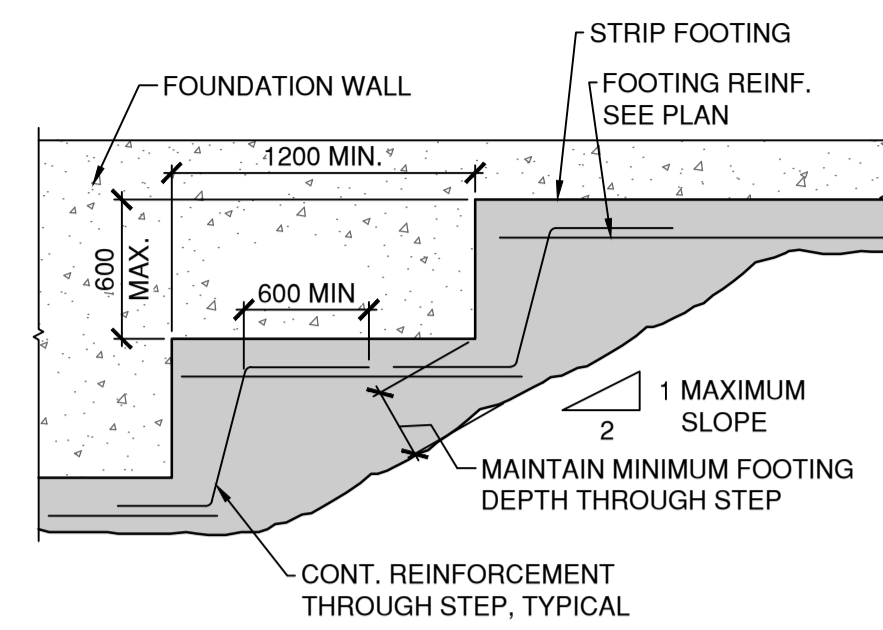
- 1 CONCRETE MATERIALS, QUALITY, MIXING, PLACING, FORMWORK AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CSA-A23.1.
2 SUPPLY CONTROLLED CONCRETE IN ACCORDANCE WITH CSA-A23.1 WITH PROPERTIES NOTED IN CONTROLLED CONCRETE TABLE.
3 MAXIMUM FLY ASH CONTENT NOT TO EXCEED 25% OF THE TOTAL CEMENTITIOUS MATERIAL.
4 NOTIFY ENGINEER 48 HOURS PRIOR TO CONCRETE POURS TO ALLOW FOR REVIEW OF REINFORCEMENT.
5 DO NOT USE ADMIXTURES CONTAINING CALCIUM CHLORIDE.
6 FOR FLOOR SLABS, DESIGN THE CONCRETE MIX WITH AGGREGATE GRADING AND WATER TO CEMENTING MATERIALS RATIO TO MINIMIZE SHRINKAGE.
7 FIELD AND LABORATORY TESTING OF CONCRETE TO BE COMPLETED BY A THIRD PARTY TESTING AND INSPECTION AGENCY APPROVED BY AND RESPONSIBLE TO THE ENGINEER. TESTING AGENCY SHALL BE CERTIFIED TO CSA-A283. ONE SET OF 3 CYLINDERS SHALL BE MADE FOR EACH DAY'S POUR. COPIES OF TEST RESULTS SHALL BE SENT TO THE ENGINEER AND CONTRACTOR. OWNER SHALL PAY FOR TESTS. IF FORECASTED TEMPERATURE ON DAY OF CONCRETE POUR IS BELOW 5° C OR ABOVE 30° C, AN ADDITIONAL 3 CYLINDERS SHALL BE MADE AND LEFT ON SITE IN SAME CONDITION AS IN SITU CONCRETE.

CONCRETE REINFORCEMENT

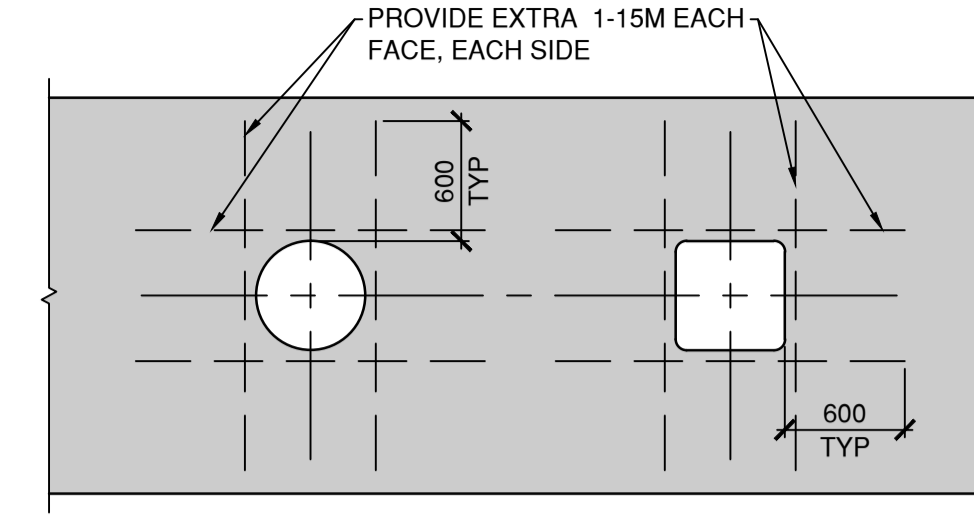
- 1 REINFORCEMENT STEEL SHALL CONFORM TO CSA-G30.18 GRADE 400.
2 DO NOT WELD REINFORCEMENT UNLESS APPROVED IN WRITING BY THE ENGINEER. REINFORCEMENT SHALL BE WELDED TO CONFORM TO CSA-G30.18, GRADE 400W. WELDING SHALL ONLY BE PERMITTED BY AN ORGANIZATION CERTIFIED TO CSA-W186.
3 REINFORCEMENT NOTED WITH "C" (e.g., C10M) SHALL HAVE A STANDARD HOOK AT ONE END. LENGTH OF BAR INDICATED IS EXCLUSIVE OF HOOK LENGTH.
4 CLEAR CONCRETE COVER TO REINFORCEMENT - REFER TO CLEAR CONCRETE COVER TO REINFORCEMENT TABLE.
5 STANDARD END HOOK LENGTHS FOR REINFORCING - REFER TO STANDARD END HOOKS TABLE.
6 REINFORCEMENT SPLICES - REFER TO REINFORCEMENT SPLICES TABLE.
9.1 WHERE SPLICES ARE INDICATED ON THE DRAWINGS, SUCH DIMENSIONS SHALL APPLY.
9.2 WHERE THE DRAWINGS INDICATE A TENSION OR COMPRESSION SPLICE, IT SHALL BE AS INDICATED IN REINFORCEMENT SPLICES TABLE.
9.3 WHERE NO SPLICE OR SPLICE TYPE IS INDICATED ON THESE DRAWINGS, IT SHALL BE A TENSION SPLICE EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION SPLICE.
7 EMBEDMENT OF DOWELS - REFER TO REINFORCEMENT SPLICES TABLE.
10.1 WHERE EMBEDMENT IS DIMENSIONED ON THE DRAWINGS, SUCH DIMENSIONS SHALL APPLY.
10.2 WHERE THE DRAWINGS INDICATE TENSION OR COMPRESSION EMBEDMENT, IT SHALL BE AS NOTED IN THE REINFORCEMENT SPLICES TABLE.
10.3 WHERE NO EMBEDMENT OR EMBEDMENT TYPE IS INDICATED ON THESE DRAWINGS, IT SHALL BE A TENSION EMBEDMENT EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION EMBEDMENT.
8 OPENINGS IN WALLS AND SLABS - PROVIDE TWO 15M BARS EACH SIDE, ONE EACH FACE, EXTENDING 600mm PAST THE OPENINGS, PLUS TWO 15M DIAGONAL BARS 1.5 TIMES THE LENGTH OF SHORTEST SIDE OF OPENING OR MINIMUM 500 mm AND MAXIMUM 1500 mm IN LENGTH AT EACH CORNER.
9 DO NOT CUT REINFORCEMENT AT OPENINGS WHERE IT CAN BE SPREAD CONTINUOUS AROUND OPENING.
10 ALL REINFORCEMENT SHALL BE SUPPORTED AT 900mm MAXIMUM SPACING.

CONCRETE FORMWORK

- 1 DESIGN, FABRICATION, ERECTION, AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CAN/CSA-S269.3.

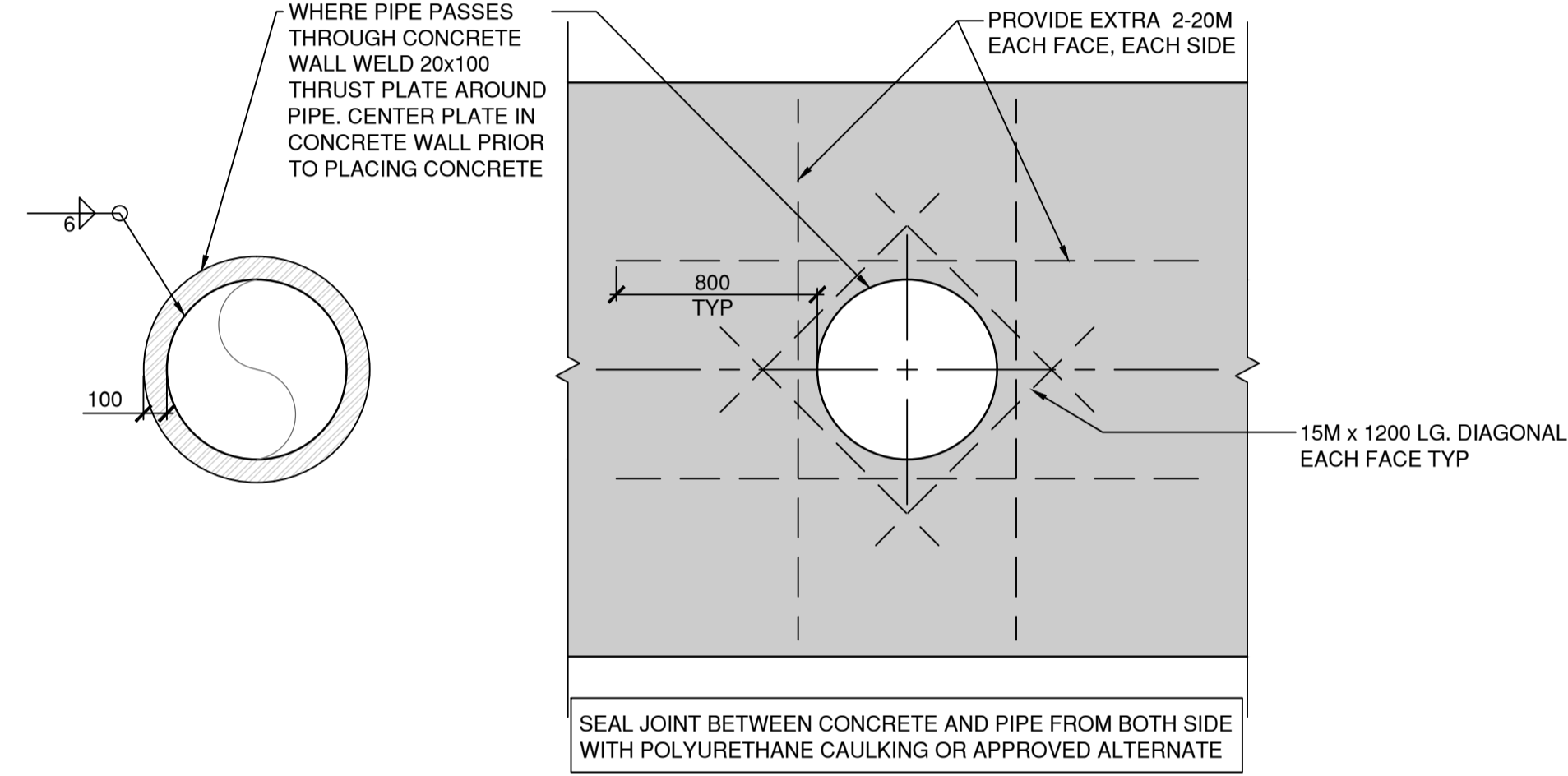


TYPICAL STEPPED FOOTING N.T.S.



- NOTES:
1. OPENINGS 150 x 150 OR SMALLER DO NOT REQUIRE ANY ADDITIONAL REINFORCING.
2. MAX. SIZE OF HOLE 400 x 400 OR 400 DIA. PROVIDE MIN. 40 RAD. ON CORNERS OF RECTANGULAR HOLES.
3. COORDINATE OPENINGS ON WALLS AND SLEEVES IN SLAB ON GRADE WITH ELECTRICAL AND CIVIL DRAWINGS.

TYP OPENING REINFORCING FOR CONCRETE S.O.G. OR WALL - 400 x 400 MAX N.T.S.



TYP OPENING REINFORCING FOR CONCRETE WALL - 1200 MAX N.T.S.

Table of typical abbreviations including (E) for 'EXISTING', ADDL for 'ADDITIONAL', ALT for 'ALTERNATE', ALUM for 'ALUMINUM', APPD for 'APPROVED', etc.

CLIMATIC INFORMATION table with columns for snow load, wind pressure, and seismic response, listing values for various categories.

CONTROLLED CONCRETE table with columns for concrete element, class of exposure, minimum compressive strength, maximum aggregate size, air content, max w/c ratio, and cement type.

REINFORCEMENT SPLICES table with columns for bar size, compression splice, and tension splice (vertical, horizontal, epoxy coated).

CLEAR CONCRETE COVER TO REINFORCEMENT table with columns for exposure condition and exposure class (N, F-1, F-2, S-1, C-XL, C-1, C-2, S-2, S-3, C-3, A-1, A-2, A-3).

SITE INFORMATION table with columns for importance category, wind exposure type, internal pressure category, and foundation site class.

FORCE MODIFICATION TABLE with columns for Rd and Ro values for squat shearwalls.

DESIGN LOADS table with columns for dead load, self weight, basic snow load, and net factored wind uplift load.



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.

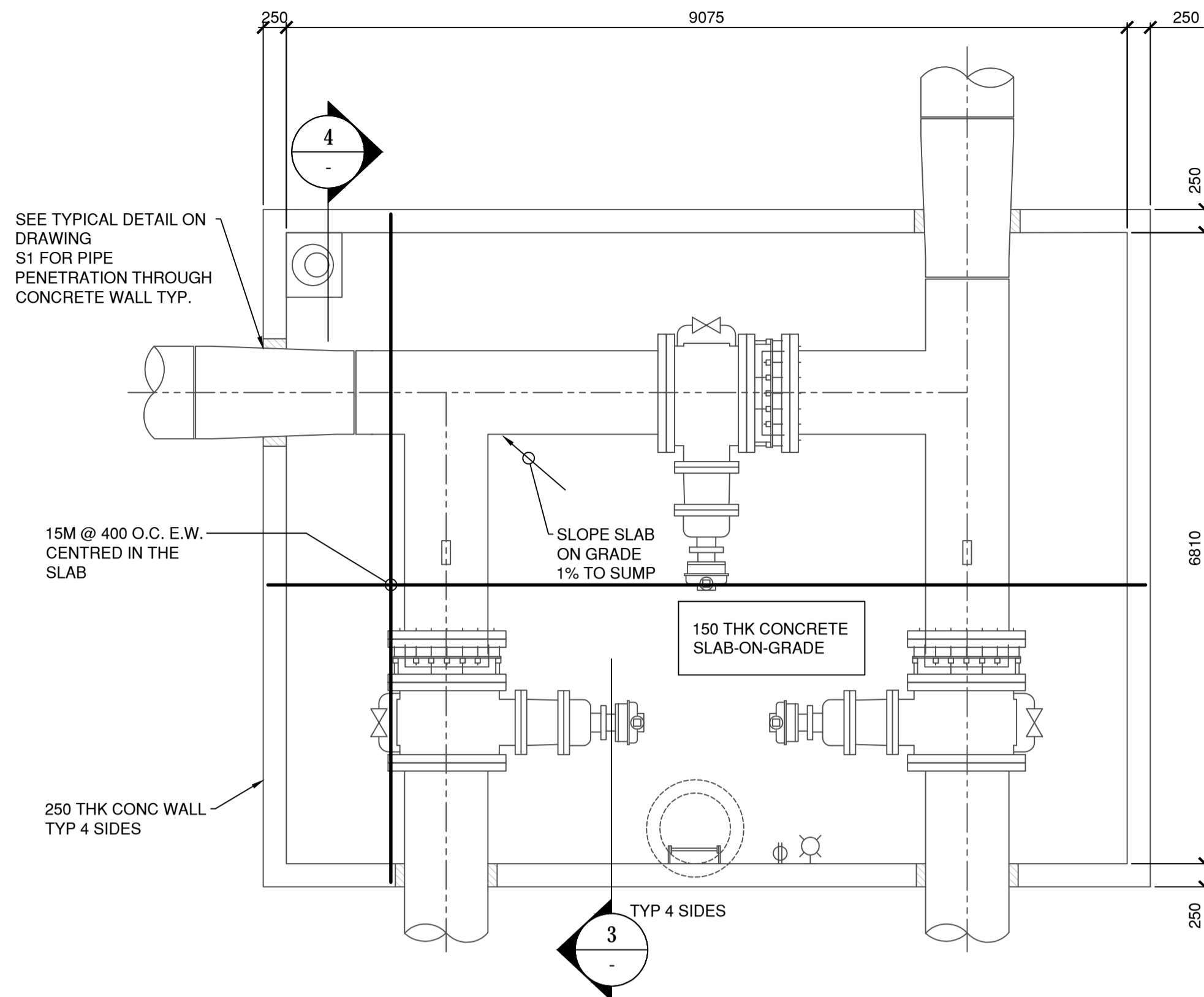
NOT FOR CONSTRUCTION

Revision table with columns for no., revision/issue, app'd by, date, const'd by, and date.

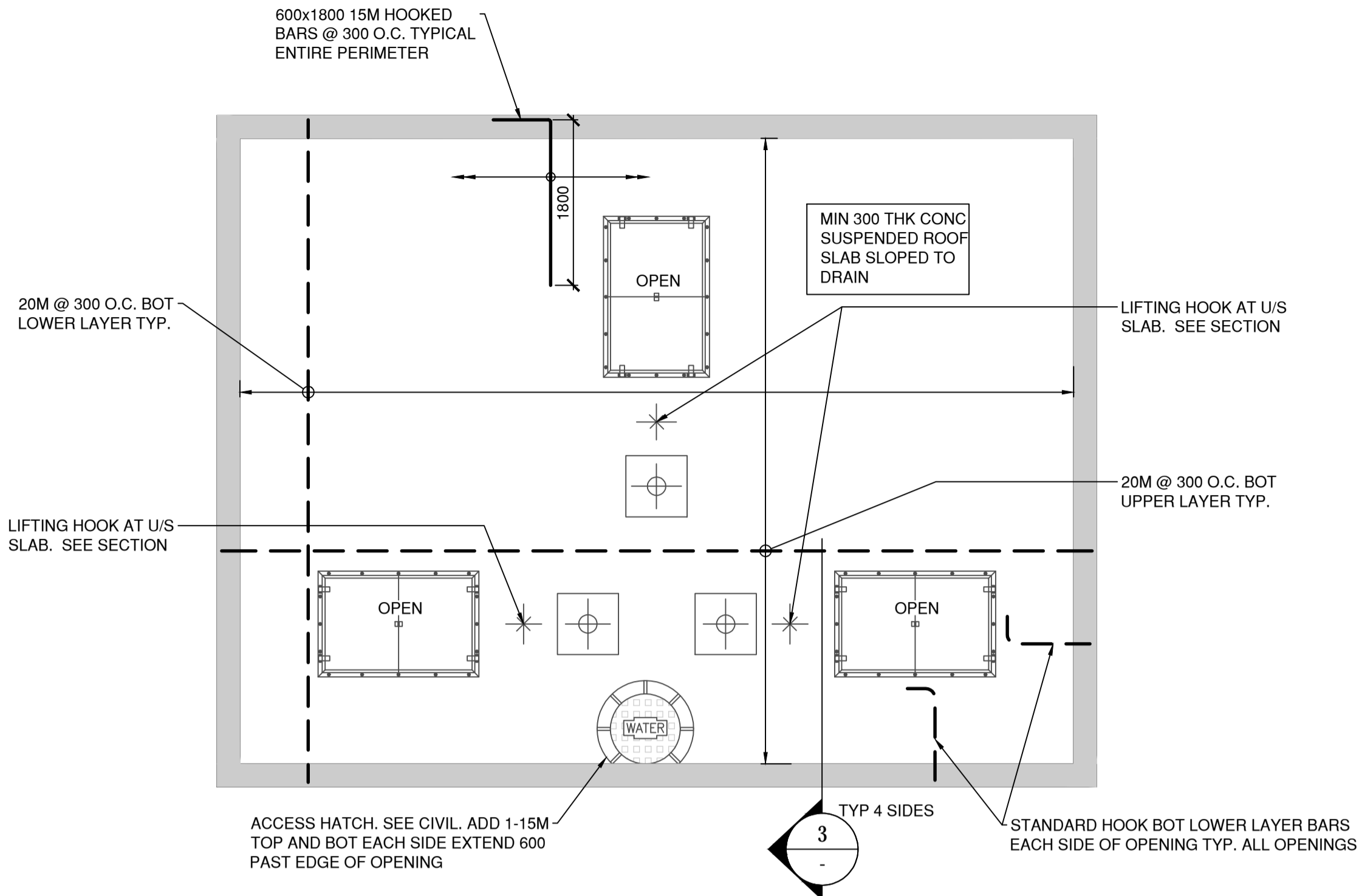
Design and approval table with columns for designed, drawn, checked, approved, scale, and dates.



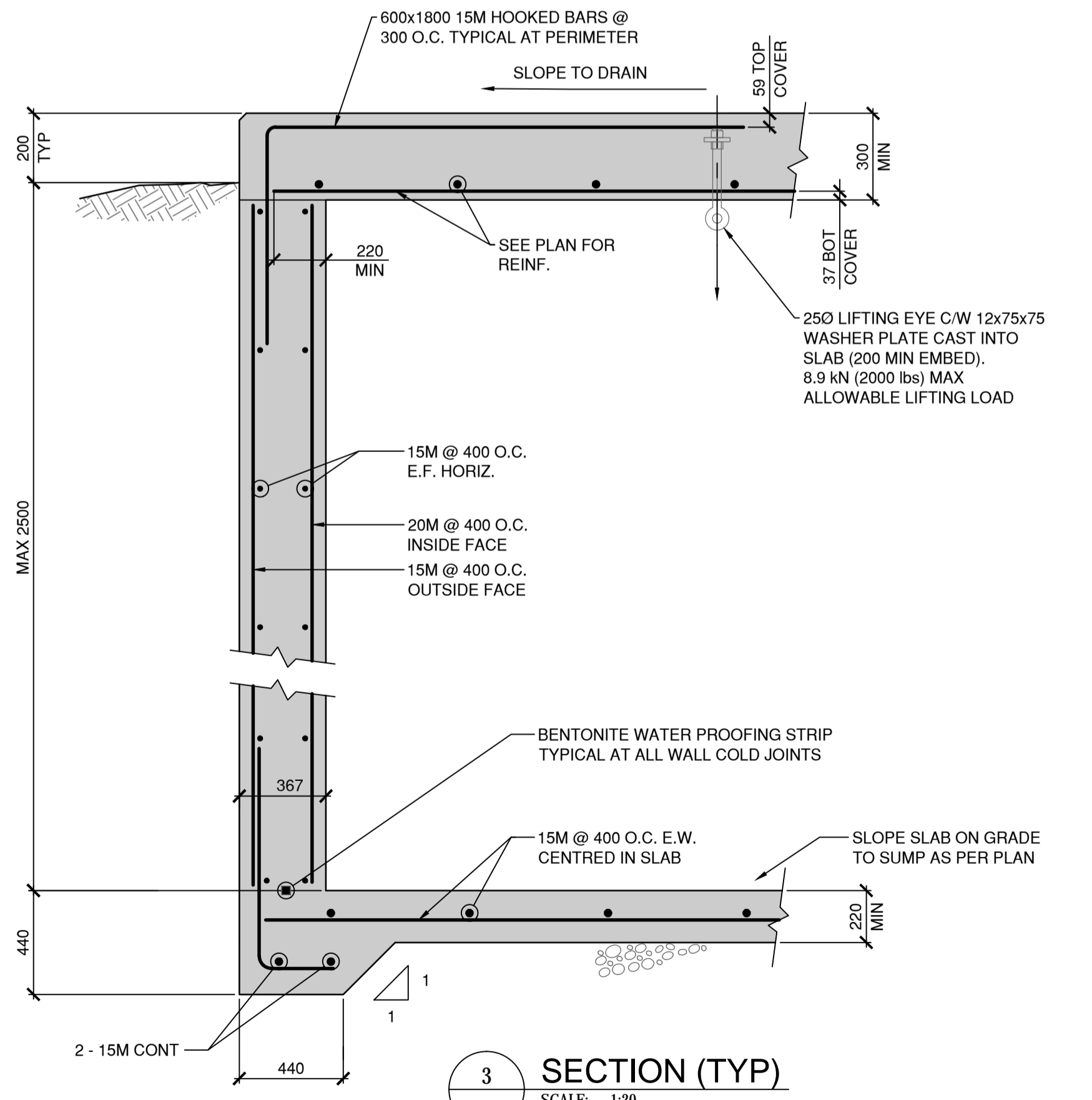
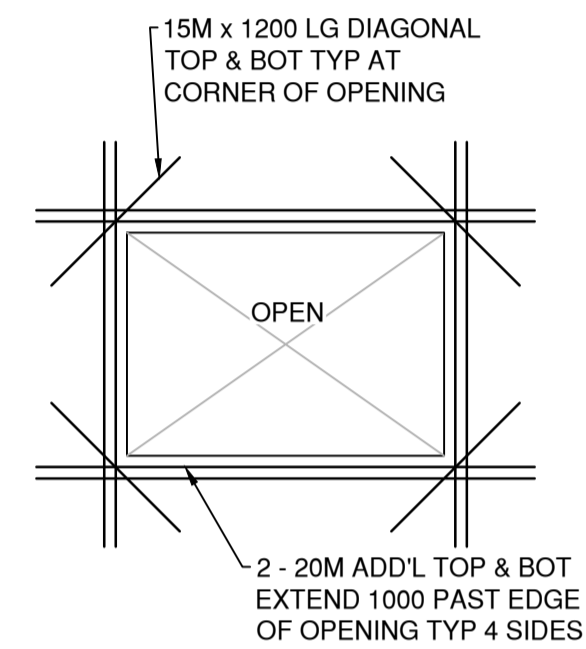
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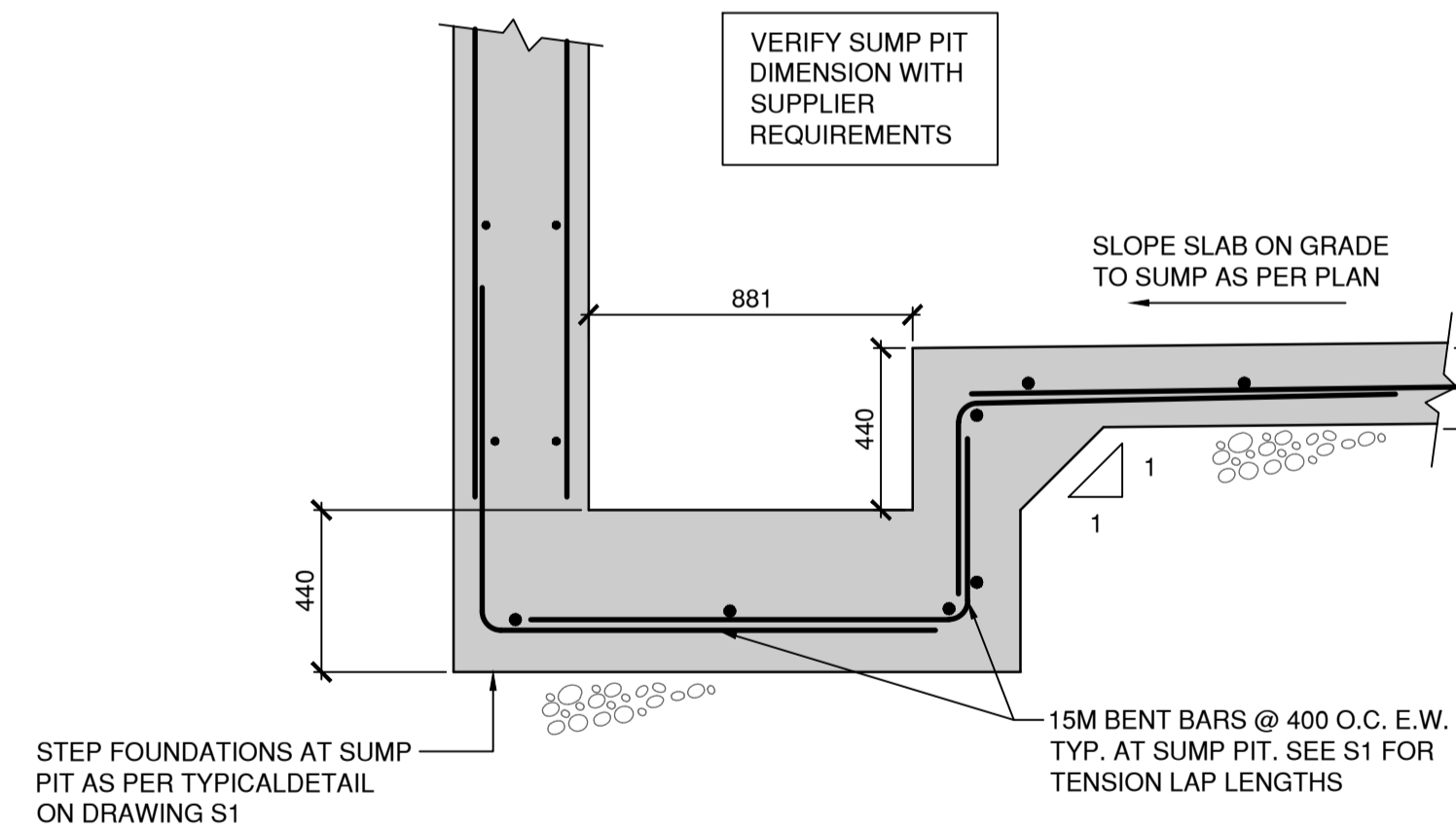
**1 FOUNDATION PLAN**  
SCALE: 1:50



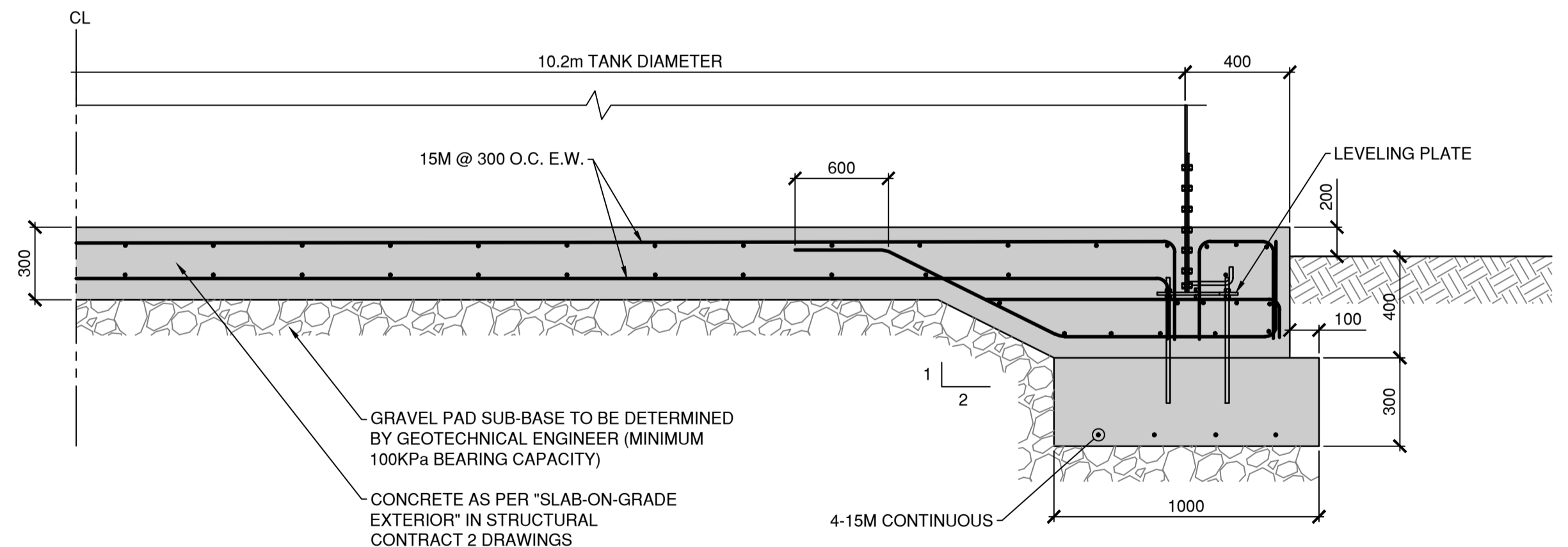
**2 SUSPENDED CONCRETE SLAB FOOT PLAN**  
SCALE: 1:50



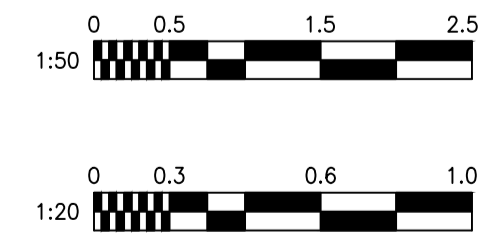
**3 SECTION (TYP)**  
SCALE: 1:20



**4 SUMP SECTION (TYP)**  
SCALE: 1:20



**5 SURGE TANK PAD DETAIL**  
SCALE: 1:20



**NOT FOR CONSTRUCTION**

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DRAWING PATH: \\CD1208-F04\workgroup\1123\active\11231316\4\_drawings\current\pump\_station\structure\11316\_s110.dwg Tab S111 Sep 23, 2016 2:28:59pm DESTROY PRINTS OF PREVIOUS REVISION

NO.	REVISION/ISSUE	APP'D BY	DATE	CONST'D BY	DATE
1	ADDENDUM 2	BL	16/09/23		

DESIGNED: BL	SCALE: AS NOTED
DRAWN: JC	DATE: 16/09/23
CHECKED: KSJ	DATE: 16/09/23
APPROVED: BL	DATE: 16/09/23

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TITLE: PROPOSED RAW WATER SUPPLY MAIN HIGHWAY #28 TREATMENT BUILDING - CONTRACT 2  
VALVE CHAMBER NOTES & DETAILS

DRAWING NO. 15-508- S111
PROJECT: 112311316
REV. 1