Water and Waste
Eaux et déchets

July 3, 2025
Client File No.: 1069.10
Our File Nos.: S-1315, EMS
020-17-08-11-00
020-17-08-11-0N

Environment and Climate Change
Environmental Stewardship Division
Environmental Compliance and Enforcement
Box 36 14 Fultz Blvd
Winnipeg, MB R3Y 0L6

Attention: Agnes Wittmann, Director

RE: NOTICE OF ALTERATION REQUEST FOR SEWPCC

The Water and Waste Department is requesting an alteration to the SEWPCC licence EAL No. 2716 RR to replace the existing Fort Garry St. Vital wastewater siphon river crossing under the Red River.

Please see the attached NOA forms and NOA detailed report to support this request.

Should you have any questions on this NOA request, please contact Ryan Lucky at 204-986-2538 or by email at ryanlucky@winnipeg.ca.

Sincerely,

[redacted]

Cynthia Wiebe, P. Eng., CAMP
Manager of Engineering Services Division

Attachment

RL/dr

c: Siobhan Burland Ross, M. Eng., P. Eng., Manitoba Conservation and Climate (email)
Neil Rentz, MSc, Manitoba Conservation and Climate (email)
T. W. Shanks, M. Eng., P. Eng., Water and Waste Department (email)
C. W. Carroll, P. Eng., Water and Waste Department (email)
R. Grosselle, Water and Waste Department (email)
S. Cournoyer, P. Eng., Water and Waste Department (email)
R. Lucky, P. Eng., Water and Waste Department (email)

ENGINEERING SERVICES DIVISION
110-1199 Pacific Avenue, Winnipeg, Manitoba R3E 3S8
DIVISION DES SERVICES D'INGÉNIERIE
1199, avenue Pacific, Porte 110, Winnipeg (Manitoba) R3E 3S8
T. | Tél. : 204-986-7550
F. | Fax : 204-224-0032
winnipeg.ca

Notice of Alteration Form

Manitoba

File No. : 1069.10	Environment Act Licence No. : 2716RR

Legal name of the Licensee: City of Winnipeg

Name of the development: South End Pollution Control Centre

Category and Type of development per Classes of Development Regulation:

Waste Treatment and Storage — Wastewater treatment plants

Licensee Contact Person: Stacy Cournoyer
Mailing address of the Licensee: 110-1199 Pacific Ave
City: Winnipeg Province: Manitoba Postal Code: R3E 3S8
Phone Number: (204) 986-2142 Fax: Email: scournoyer@winnipeg.ca

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):
Mike Gaudreau, P. Eng.

Phone: (204) 479-6762 Fax:	Mailing address: 99 Commerce Drive, Winnipeg, MB R3P 0Y7

Email address: Mike.Gaudreau@aecom.com

Short Description of Alteration *(max 90 characters):*
Fort Garry St Vital River Crossing Replacement

Alteration fee attached: Yes: ☐ No: ☑

If No, please explain: Replacement of pipeline with no change to environmental effects

Date: 2025-07-03	Signature: [redacted] Printed name: Stacy Cournoyer, P. Eng.

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☑ **1 electronic copy of the NoA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☐ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NoA to:
Director, Environmental Approvals Branch
Environment and Climate Change
Box 35, 14 Fultz Blvd
Winnipeg MB R3Y 0L6
EABDirector@gov.mb.ca
For more information:
Toll-Free: 1-800-282-8069
Phone: 204-945-8321 Fax: 204-945-5229
https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/ licence/index.html

Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an Environment Act Proposal Form (see "Information Bulletin – Environment Act Proposal Report Guidelines")

Replacement of the Fort Garry-St. Vital Siphon – Notice of Alteration Revision 1

City of Winnipeg

60728226

July 2025

Delivering a better world

AECOM Canada ULC
99 Commerce Drive
Winnipeg, MB R3P 0Y7
Canada

T: 204.477.5381
F: 431.800.1210
www.aecom.com

VIA EMAIL (ryanlucky@winnipeg.ca)

July 3, 2025

Project #
60728226

Mr. Ryan Lucky
Design and Specification Engineer
Engineering Services
Water and Waste
110-1199 Pacific Avenue
Winnipeg, MB R3E 3S8

Subject: Replacement of the Fort Garry-St. Vital Siphon – Notice of Alteration Revision 1

Dear Mr. Lucky:

We respectfully submit this detailed report supporting the City of Winnipeg's (City's) Notice of Alteration (NoA) to the Environment Act Licence No. 2716 RR (Licence) for the construction of the replacement Fort Garry-St. Vital (FGSV) Wastewater Siphon Crossings of the Red River.

The existing 700 mm and 800 mm high density polyethylene (HDPE) wastewater siphon crossings were located between the eastbound and westbound Fort Garry Bridges on the bottom of the Red River. The siphon crossings of the Red River failed in late 2023 and were isolated from the sewer system in February of 2024, effectively isolating any wastewater from leaking into the Red River.

An emergency bypass has been in operation since February 2024. The emergency bypass consists of two (2) 400 mm HDPE force mains connecting the temporary pumping arrangement at the D'Arcy Lift Station site on the west side of the Red River to the St. Vital Trunk on the east side of the Red River via the eastbound Fort Garry Bridge. The current configuration is able to by-pass the same amount of wastewater as the system prior to failure at an approximate pumping capacity of 820 l/s.

The new FGSV Wastewater Siphon is designed to be hydraulically equivalent to the original crossing of the Red River and will be located south of eastbound Abinojii Mikanah. The new crossing will consist of two (2) new 900 mm HDPE lines, encased and grouted within a 2100 mm reinforced concrete pipe (RCP) installed via microtunnel boring machine (MTBM) within the underlying bedrock crossing the Red River.

We expect the environmental and human health effects resulting from the construction of the replacement FGSV Wastewater Siphon Crossings of the Red River to be insignificant and as such be considered as a minor alteration per Section 14 of The Environment Act.

Sincerely,
AECOM Canada ULC

[redacted]

Mike Gaudreau, P.Eng.
Municipal Engineer
Conveyance, Water
EC/MG/pab
Encl.

[redacted]

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada ULC ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

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AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

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Revision History

Rev #	Revision Date	Revised By:	Revision Description
0	May 2025	E. Carlson/M. Gaudreau	Draft
1	June 2025	E. Carlson/M. Gaudreau	Final
2	July 2025	M. Gaudreau	Final – Revision 1

Distribution List

# Hard Copies	PDF Required	Association / Company Name
	✓	City of Winnipeg
	✓	AECOM Canada ULC

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Appendices

1. Introduction

This NoA to the Licence is for the construction of the replacement FGSV Wastewater Siphon Crossings of the Red River as shown in Appendix A. The proposed FGSV Wastewater Siphon Crossing is a like for like replacement designed to maintain the existing level of service as the original crossing, and consists of:

- New discharge chamber replacing the original discharge manhole receiving the pumped flows (unchanged) from the D'Arcy Lift Station.
    - The new discharge chamber will be fitted with an overflow weir set to 227 m, 23 mm higher than the original siphon system's overflow, designed to maintain the level of service up to a 1:100 year summer design rainfall event.
- New 1350 mm RCP gravity sewer connecting the new discharge chamber to the new upstream siphon chamber crossing eastbound Abinojii Mikanah.
- New upstream siphon chamber, configured to allow for siphon isolation and hydrostatic leakage testing.
- Two (2) new 900 mm DR 11 HDPE siphon carrier pipes installed within a new 2100 mm RCP casing pipe tunneled by MTBM across the Red River in underlying bedrock.
- New downstream siphon chamber, configured to allow for siphon isolation and hydrostatic leakage testing.
- New 1350 mm RCP gravity sewer connecting the downstream siphon chamber to a new manhole on the existing St. Vital Trunk Crossing eastbound Abinojii Mikanah.

Key features of the new FGSV are as follows:

1. Hydraulic equivalency resulting in no expected change in environmental or human health effects including:
    a. Overflow volume and occurrence will be limited to that of the original siphon crossing configuration with:
        i. No overflows occurring for the 1:25 year summer design rainfall event.
        ii. No increase in overflow volume for a 1:100 summer design rainfall event.
    b. The upstream level of service against basement flood protection will be maintained.
    c. The downstream impacts on the St. Vital Trunk System and associated level of service against basement flooding will be maintained.
2. The two (2) new 900 mm DR 11 HDPE wastewater siphon crossings will be encased and grouted within a 2100 mm RCP, and further tunnelled within competent bedrock consistent with Clause 20 of the Licence.
3. The new upstream and downstream siphon chambers will be fitted with knife gates, vertical pipe extensions to surface and small diameter threaded taps for pressure gauges to allow for hydrostatic leakage testing consistent with Clause 19 of the Licence.

Once the new FGSV Wastewater Siphon Crossings of the Red River are commissioned, the Emergency Bypass System currently in place will be decommissioned and removed.

Additional project background, schedule, description and other regulator requirements are discussed in the following sections.

2. Project Background

During planned inspections in late 2023, the original 700 mm and 800 mm HDPE FGSV Siphons Crossing the Red River were found to be in poor condition, where one (1) of the siphons was assessed to be leaking and put out of service. After the assessment of the siphons, planning was immediately commenced to install an emergency

bypass system across the Red River, via the east bound Fort Garry Road Bridge on Abinojii Mikanah. On February 7, 2024, a sinkhole on the west bank of the river was observed, which indicated the partial collapse and subsequent failure of the second siphon.

The design and implementation of an emergency bypass system began in December 2023 initiated by the discovery of the leaking siphon. Construction on site of the bypass commenced on February 5, 2024, and now consists of a system capable of replicating the existing D'Arcy Lift Station flows to approximately 820 l/s. The pumps connect into two (2) 400 mm DR 17 HDPE emergency bypass force mains, which are routed on the north side of the eastbound Abinojii Mikanah Bridge, and discharge to the original downstream siphon chamber.

The original 700 mm and 800 mm siphons were isolated from the wastewater sewer (WWS) system via structural concrete plugs in February of 2024. Consequently, the siphons were not able to collect and/or leak any additional wastewater to the environment.

These siphons floated twice within the Red River since their isolation from the WWS system in August of 2024 and again in October of 2024. Consequently, in March 2025, the exposed sections along the river bottom have been removed due to waterway navigational hazards. The remaining in-slope sections will be filled with a flowable cement and abandoned. The details of the abandonment of the original siphon crossing are provided in the Notice of Alteration to the Licence dated October 31, 2024.

The proposed new subsurface crossing of the Red River will allow for decommissioning of the Emergency Bypass and restoring the system to the original operation.

3. Schedule

Key milestone dates are presented in Table 1.

Table 1 - Project Schedule

Milestone	Date
Prequalification Close	December 23, 2024
Tender Close	June 6, 2025
Award	July 4, 2025
Mobilization	September 8, 2025
Bypass Decommissioning/New Crossing Online	May 15, 2026
Total Performance	July 15, 2026
Final Acceptance	June 15, 2027

4. Description of Proposed Works

The proposed works for the new FGSV Wastewater Siphon Crossings of the Red River are described in the following sections and are shown in the Tender Drawings for City of Winnipeg Tender 1010-2024B (Appendix A).

4.1 Site Development

The Contractor is allocated laydown areas as shown in the Drawings (Appendix A). The following additional requirements for Environmental Protection have been stipulated in the Tender:

- Construction material shall not be stockpiled within 106.7 m of the regulated summer water level of the Red River in accordance with the City of Winnipeg's Waterway By-Law.
- Contractor shall not store or refuel within 100 m of the waterway and shall have a designated Emergency Response Coordinator for any spills.
- Contractor shall provide protection for existing trees and coordinate with the City of Winnipeg's Forestry Department in advance of any tree removal.
- Vegetation clearing, as needed, shall not take place during the breeding bird season for the City of Winnipeg (April 14 to August 28)[1] to avoid contravening bird protection legislation unless conditions and criteria are met for pre-construction nest surveys to determine nest occupancy as stipulated by Environment and Climate Change Canada, and nest protection mitigation is applied for active nests as stipulated by Environment and Climate Change Canada[2].
- Contractor shall maintain security fencing around the site for public safety and will maintain pedestrian transportation around the work area.

4.2 Upstream Gravity System

The new discharge chamber will collect the flow from the D'Arcy Lift Station, and convey it through a new 1350 mm RCP to the upstream siphon chamber. Similar to the original siphon crossing, the new siphon crossing is fitted with an emergency overflow weir in the discharge chamber, which enables the system to relieve itself through the existing 1350 mm gravity sewer to the Red River during infrequent (e.g. extreme summer rainfall) or unanticipated (e.g. infrastructure failure/blockages) conditions.

Under extreme summer rainfall events, the new FGSV siphon crossing, similar to the original siphon crossing, is only expected to overflow for design events in excess (not including) of the 1:25 year summer design rainfall event. For the 1:100 year summer design rainfall event, the overflow volume with the new FGSV siphon crossing (estimated at 340 m^3) is anticipated to be slightly less than the original siphon crossing (estimated at 450 m^3) under the same design condition. The impact on basement flooding risk during these extreme conditions is similarly expected to be negligible.

The construction of the new discharge chamber will consist of a tight shoring system to protect against any deleterious movement of the City's Aqueduct. The new discharge chamber will be a cast-in-place reinforced concrete structed fitted with lining to protect against hydrogen sulfide attack.

The new 1350 mm gravity sewer will be tunneled beneath the eastbound Abinojii Mikanah roadway, and consists of lined reinforced concrete pipe connecting to the new upstream siphon chamber.

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[1] Breeding bird nesting period for Zone B4 as indicated by Environment and Climate Change Canada (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html)

[2] Environment and Climate Change Canada. Guidelines to avoid harm to migratory birds. https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html#toc2

4.3 River Crossing

The new river crossing will consist of an upstream siphon chamber located on the west side of the Red River, and two (2) new 900 mm HDPE lines crossing the Red River discharging into the new downstream siphon chamber on the east side of the Red River.

The upstream chamber will be constructed within the exit shaft, and the downstream siphon chamber will be constructed within the entry shaft of the MTBM operation. Both chambers will be cast-in-place concrete, with protective linings in the wet chamber and fibreglass reinforced pipe through the dry chamber. The dry chambers are fitted with knife gates and vertical piping to allow for isolation of the river crossing, and small diameter taps that can be fitted with pressure gauges. This will allow the City to undertake hydrostatic leakage testing of the crossings by isolating a single 900 mm siphon line for testing, while the other 900 mm siphon continues to convey normal dry weather flow.

The new siphon crossing will consist of the two (2) new 900 mm HDPE siphons installed within a 2100 mm reinforce concrete encasement pipe installed via MTBM. The 2100 mm MTBM will be installed in competent bedrock, with confining pressures to largely exceed any slurry pressure during the installation negating frac-out risk. Once the 2100 mm reinforced concrete pipe is installed, the two (2) new 900 mm HDPE lines will be pulled through the crossing and grouted in place.

4.4 Downstream Gravity System

From the new downstream siphon chamber, a new 1350 mm gravity sewer will convey flow to a new manhole on the existing 1350 mm St. Vital Trunk.

The new 1350 mm gravity sewer, which will be tunneled beneath the eastbound Abinojii Mikanah roadway, consists of lined RCP connecting to the new St. Vital Trunk manhole.

The construction of the new St. Vital Trunk manhole will consist of a tight shoring system to protect against any deleterious movement of the City's Aqueduct. During construction it is expected that a flow through system to convey existing flows through the excavation will be required, or alternately a modification to the Emergency Bypass to connect flows just downstream of manhole connection. Requirements to maintain existing Emergency Bypass flow capacity have been included in the Tender.

The new St. Vital Trunk manhole will be a standard City of Winnipeg pre-cast manhole fitted with a protective liner to protect against hydrogen sulfide attack.

5. Environmental and Human Health Effects

The environmental and human health effects that could result from the proposed changes and potential mitigation measures which could be implemented are described in Table 2.

Table 2 - Project Environmental Interactions, Mitigation, and Residual Effects

Environmental Component	Baseline Condition	Type of Interaction	Project Phase	Required Mitigation	Residual Effect(s)
Air Quality	The City of Winnipeg's air quality is generally considered good to ideal, posing little to no risk to human health. However, air quality does vary and should be monitored through Winnipeg - Air Quality Health Index. Sources of airborne pollutants typically include industrial operations, vehicle and equipment emissions, fires, and other specific activities.	Emissions from equipment Dust	Construction Construction	• Contractor to ensure all equipment is in good working order and is maintained throughout project • Contractor to ensure all equipment is fitted with standard air emission control devices • Avoid unnecessary idling of vehicles and/or heavy machinery • Do not burn materials that will negatively affect air quality • Comply with all permit conditions issued by Manitoba Environment and Climate Change or other authorities • Employ non-toxic dust control measures as required • Avoid excavation activities during extremely windy periods • Re-vegetate site as required • Comply with all permit conditions issued by Manitoba Environment and Climate Change or other authorities	N/A
Soils	Based on the Geotechnical Baseline Report, the soil profile consists of topsoil black and grey fat clays overlying silt till, and brecciated dolomitic mudstone (bedrock).	Disturbance, compaction, contamination	Construction	• Limit grubbing and excavation operations to designated areas and utilize excavation boxes if possible • Vehicles and machinery should use designated access roads/trails, laydown areas to avoid unnecessary compaction • Contractor to ensure all equipment is in good working order, is free of fluid leaks, and is well maintained • Contractor to implement appropriate erosion and sediment control measures • Contractor to ensure storage containers for hazardous goods are equipped with secondary containment • Emergency spill kits kept on site and operators properly trained to use them so that any spills can be contained and cleaned up • Ensure all fueling is completed well away from waterway (a minimum of 100 m away from waterway as per Tender specifications) • All reportable spill quantities will be reported to the Manitoba Conservation Emergency Response Team at 204-944-4888 • Comply with all permit conditions issued by Manitoba Environment and Climate Change or other authorities	N/A
Vegetation	The project site consists of landscaping (grass) and common riverbank trees, native grasses, and low shrub cover.	Loss of vegetation	Construction	• Refer to mitigation measures under Soils • Make use of natural or existing clearings where possible • Ensure appropriate firefighting equipment is on site and serviceable • Protect trees near worksite as required to avoid damage • Encourage natural regeneration of disturbed sites and/or revegetate site by seeding, tree planting, and shrub planting (in conjunction with City of Winnipeg Forestry, Naturalist Branch, and Parks)	N/A
Terrestrial Wildlife	The project site provides wildlife habitat as described above for Vegetation.	Loss of wildlife habitat and potential for disturbance or mortality of wildlife (e.g., breeding birds)	Construction	• Mitigation for Soils, Vegetation, Air Quality and Waste Management will be maintained • Wildlife are not to be fed or harassed • Vegetation clearing, as needed, shall not take place during the breeding bird season for the City of Winnipeg (April 14 to August 28) to avoid contravening bird protection legislation unless conditions and criteria are met for pre-construction nest surveys to determine nest occupancy as stipulated by Environment and Climate Change Canada, and nest protection mitigation is applied for active nests as stipulated by Environment and Climate Change Canada (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html#toc2)	

Environmental Component	Baseline Condition	Type of Interaction	Project Phase	Required Mitigation	Residual Effect(s)
Aquatic Life	The Red River provides year-round habitat for various life stages of approximately 56 fish species (e.g., channel catfish, walleye, muskellunge, northern pike, smallmouth bass, goldeye, mooneye, sauger). The Mapleleaf mussel may be present in the Red River and is listed as Endangered under *The Endangered Species and Ecosystems Act* (Manitoba) and as Threatened under the federal *Species at Risk Act* (SARA).	Disturbance, contamination	Construction	• Site to be restored to preconstruction conditions, including geometry and contours/elevations • Limit grubbing and excavation operations to designated areas • Vehicles and machinery should use designated access roads/trails, laydown areas • Contractor to ensure all equipment is in good working order, is free of fluid leaks, and is well maintained • Contractor to ensure storage containers for hazardous goods are equipped with secondary containment • Emergency spill kits kept on site and operators properly trained to use them so that any spills can be contained and cleaned up • All spills will be reported to the Manitoba Conservation Emergency Response Team at 204-944-4888 • Contractor to implement appropriate erosion and sediment control measures • Comply with all permit conditions issued by Manitoba Environment and Climate Change or other authorities	N/A
Heritage	As this is a replacement of previous infrastructure in area previously disturbed, there is a low probability of encountering new heritage materials.	Heritage Resources	Construction	• If Contractor discovers any heritage resources during excavation activities, work must be stopped, and the Historic Resources Branch of the Manitoba Government must be contacted immediately at 204-945-2118 • Heritage resources monitoring will be conducted during construction as required by Manitoba Historic Resources Branch • Comply with all permit conditions issued by Manitoba Environment and Climate Change or other authorities	N/A
Waste Management	City waste collection bins are placed nearby for pedestrian garbage collection	Waste generation	Construction	• Waste must be collected, sorted, transported, and disposed of based on its unique characteristics at a licensed facility • Comply with all permit conditions issued by Manitoba Environment and Climate Change or other authorities	N/A
Socio-Economic	The adjacent Abinojii Mikanah (Route 165) and FGSV Bridge is an important truck, transit and commuter route. The Awasisak Mēskanôw Greenway is located adjacent to Abinojii Mikanah and crosses the FGSV Bridge. It is Winnipeg's longest multiuse trail and an important cyclist and pedestrian path. The land surrounding the work area is mostly vacant park space, with some residential land nearby.	Noice disturbance, traffic management	Construction	• The City will notify adjacent landowners of the upcoming construction or potential traffic disruptions through letter mail. Public concerns may also be communicated through construction using the City's 311 system • Accommodation of multiuse trails and construction of temporary multiuse trail will be provided	N/A

6. Other Regulatory Requirements

Additionally, AECOM has reviewed the other regulatory requirements as listed in below, which will be addressed separate to this NoA:

- Department of Fisheries and Oceans (DFO):
    - No in water work is expected and appropriate erosion and sediment control measures will be implemented. Therefore, DFO Request for Review, SARA permit or Fisheries Act Authorization is not required.
- Transport Canada Approval under the *Canadian Navigable Water Act* (CNWA) and the Navigation Protection Program (NPP):
    - Under Section 19 (Buried Pipelines) in the Minor Works Order, the work meets the criteria for "Minor Work". AECOM will provide notice of the work through the Government of Canada Project Registry and on the Navigation Protection Program external submission site.
- *Endangered Species and Ecosystems Act:*
    - As no in water work is expected, application for Exemption under *The Endangered Species and Ecosystems Act* regarding aquatic Species at Risk is not required.
- *Heritage Resource Act:*
    - A Heritage Resources Impact Assessment (HRIA) is required, which will include monitoring during construction.
- *Waterway Permit:*
    - AECOM will submit a waterway permit application under the City of Winnipeg's Waterway By-law No. 5888/92 as work is occurring within 106.7 m (350 ft) of the regulated summer water level of the Red River.

7. Conclusion

AECOM has undertaken the design and tendered the replacement FGSV Wastewater Siphon Crossings of the Red River as part of City of Winnipeg Tender 1010-2024B.

The replacement FGSV Wastewater Siphon Crossings of the Red River is designed to be hydraulically equivalent to the original crossing and consequently not expected to have any additional adverse environmental or human health effects, where:

- The overflow occurrences and volumes will be unchanged, if not improved:
    - For the 1:25 summer design rainfall overflows are not expected, which is consistent with the original siphon crossing.
    - The emergency overflow is only intended to operate under extreme conditions, where for the 1:100 summer design rainfall event the overflow volume is expected to be slightly less compared to the original siphon crossing.
- The level of protection against basement flooding in the upstream system will be maintained.
- The downstream impacts on the St. Vital Trunk System and associated risk of basement flooding are expected to be the same.

The two (2) new 900 mm DR 11 HDPE wastewater siphon crossings will be encased and grouted within a 2100 mm RCP, and further tunnelled within competent bedrock consistent with Clause 20 of the Licence.

The new upstream and downstream siphon chambers will be fitted with knife gates, vertical pipe extensions to surface and small diameter threaded taps for pressure gauges to allow for hydrostatic leakage testing consistent with Clause 19 of the Licence.

We consequently conclude that the replacement FGSV Wastewater Siphon Crossings of the Red River is consistent with the Licence and poses no significant residual adverse environmental and human health effects.

Appendix A

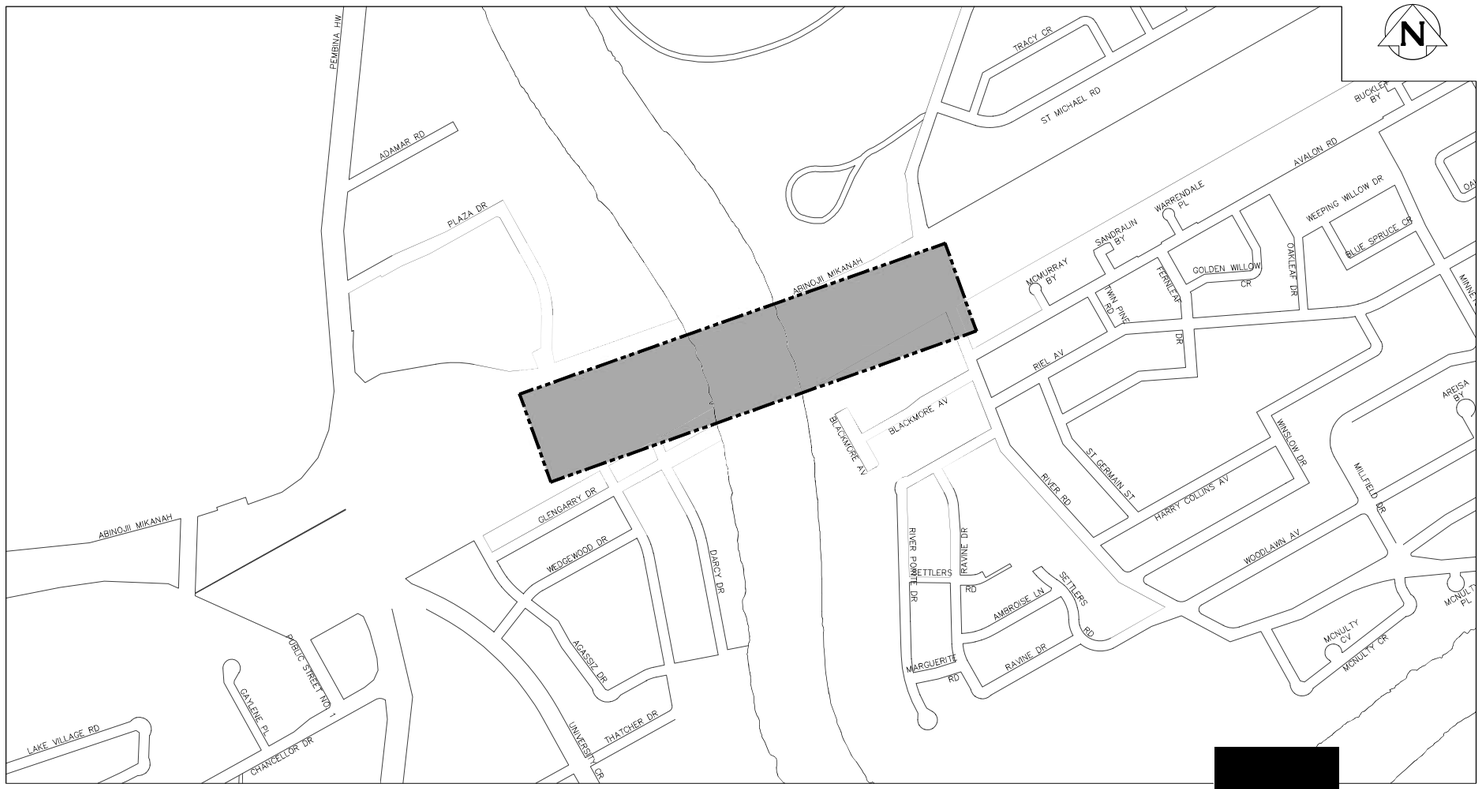
Design Drawings

THE CITY OF WINNIPEG

WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE FORT GARRY ST VITAL SIPHON

TENDER 1010-2024B



KEY MAP

[redacted]

FOR INDEX SEE G-1001

SHEET 1 OF 32

CITY DRAWING NUMBER

G–1000

DRAWING INDEX

SHEET NUMBER	CITY OF WINNIPEG DRAWING NUMBER	DRAWING TITLE
1	G-1000	COVER
2	G-1001	DRAWING INDEX, DESIGN NOTES, LEGEND, & ABBREVIATIONS
3	C-1000	GENERAL PLAN – CONSTRUCTION & STAGING – WEST BANK
4	C-1001	GENERAL PLAN – CONSTRUCTION & STAGING – EAST BANK
5	C-1002	SITE PLAN – WEST BANK
6	C-1003	SITE PLAN – EAST BANK
7	C-1004	PLAN / PROFILE – D'ARCY PUMPING STATION TO MATCHLINE 1+250
8	C-1005	PLAN / PROFILE – MATCHLINE 1+250 TO 1350 INTERCEPTOR
9	C-1006	PLAN / PROFILE – EXISTING DISCHARGE MANHOLE TO PROPOSED UPSTREAM SIPHON CHAMBER
10	C-1007	PLAN / PROFILE – PROPOSED DOWNSTREAM SIPHON CHAMBER TO 1350 INTERCEPTOR
11	C-1008	PLAN / PROFILE – EXISTING DISCHARGE MANHOLE TO SIPHON INLET & OVERFLOW CHAMBERS
12	C-1009	PLAN / PROFILE – PROPOSED LDS
13	C-4001	DETAILS 1
14	C-4002	DETAILS 2
15	C-5001	STANDARD DETAILS – MONITORING AND INSTRUMENTATION
16	L-1001	SITE GRADING PLAN – WEST BANK & EAST BANK
17	L-1002	PLAN / PROFILE – EAST SIDE LAYDOWN AREA – TEMPORARY MULTI-USE PATHWAY
18	L-4001	SITE GRADING DETAILS
19	S-1001	DISCHARGE MANHOLE – SECTIONS & DETAILS
20	S-1002	EXISTING SIPHON CHAMBER MODIFICATIONS – SECTIONS & DETAILS
21	S-1003	PROPOSED UPSTREAM SIPHON CHAMBER – PLANS & DETAILS
22	S-1004	PROPOSED UPSTREAM SIPHON CHAMBER – SECTIONS & DETAILS
23	S-1005	PROPOSED DOWNSTREAM SIPHON CHAMBER – PLANS & DETAILS
24	S-1006	PROPOSED DOWNSTREAM SIPHON CHAMBER – SECTIONS & DETAILS
25	S-1007	WEST & SOUTH GATE CHAMBER – ROOF SLAB REPLACEMENT – SECTIONS & DETAILS
26	S-4001	STRUCTURAL REINFORCING & MISCELLANEOUS DETAILS
27	S-2001	DISCHARGE MANHOLE – STRUCTURAL GENERAL NOTES
28	S-2002	DISCHARGE MANHOLE – STRUCTURAL PLANS AND SECTIONS
29	S-2003	UPSTREAM SIPHON CHAMBER – STRUCTURAL PLANS
30	S-2004	UPSTREAM SIPHON CHAMBER – STRUCTURAL SECTIONS AND DETAILS
31	S-2005	DOWNSTREAM SIPHON CHAMBER – STRUCTURAL PLANS
32	S-2006	DOWNSTREAM SIPHON CHAMBER – STRUCTURAL SECTIONS AND DETAILS

HATCH PATTERNS

EXISTING	PROPOSED	DESCRIPTION
		EARTH OR GROUND ABOVE PIPE
		SAND OR OTHER FINE MATERIAL
		CONCRETE
		WASHED STONE OR GRANULAR MATERIAL
		INTERLOCKING STONE
		METAL
		GRAVEL OR STONE

ABBREVIATIONS

WWS	WASTE WATER SEWER
CS	COMBINED SEWER
LDS	LAND DRAINAGE SEWER
℄	PROPERTY LINE
℄	CENTER LINE
G.I.S.	GEOGRAPHIC INFORMATION SYSTEM
B.M.	BENCH MARK
TH	TEST HOLE
ELEV	ELEVATION
INV	INVERT
MIN	MINIMUM
MAX	MAXIMUM
SL	STREET LIGHTING
TS	TRAFFIC SIGNALS
ABAND	ABANDONED
BLDG	BUILDING
HSE	HOUSE
CRN	CORNER
OPP	OPPOSITE
C/S OR S/C	CURB STOP
MTS	MANITOBA TELEPHONE SYSTEM
R.O.W.	RIGHT-OF-WAY
WM	WATERMAIN
CULV	CULVERT
MH	MANHOLE
CB	CATCH BASIN
CI	CURB INLET
VERT.	VERTICAL
HORZ.	HORIZONTAL
I.B.	IRON BAR
FIBRE	FIBRE OPTIC
TYP	TYPICAL
X-ING	CROSSING
HYD	HYDRANT
EXIST	EXISTING
N	NORTH
E	EAST
S	SOUTH
W	WEST
W/	WITH
C/W	CONSTRUCTED WITH
CONC	CONCRETE
AC	ASBESTOS CEMENT
VC OR CLAY	VITRIFIED CLAY
CI	CAST IRON
DI	DUCTILE IRON
PVC	POLYVINYL CHLORIDE
HDPE	HIGH DENSITY POLYETHYLENE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
FRPMP	FIBRE REINFORCED POLYMER MORTAR PIPE

GENERAL NOTES:

1. CONTRACTOR TO PROTECT WATERWAYS, DRAINAGE INFRASTRUCTURE, MULTI-USE PATH, ROADWAYS AND OTHER SURFACE FEATURES FROM SILT WASHOUT BY INSTALLATION OF SILT FENCES.
2. SITE IN PROXIMITY TO D'ARCY LIFT STATION WILL BE HANDED OVER TO CONTRACTOR DECEMBER 15TH, 2025 TO ALLOW FOR LINING OF EXISTING 600mm AND 500mm SEWERS AS SHOWN ON DRAWINGS.

LEGEND

PLAN VIEW

DESCRIPTION	EXISTING	PROPOSED
WATER PIPE		
FIRE HYDRANT		
VALVE		
CURB STOP		
REDUCER		
COUPLING OR SLIDDER		
CROSS		
BEND – 11.25°, 22.5°, 45°, 90°		
TEE		
VERTICAL BEND		
ANODE		
REPAIR MARKER		
PLUG		
SEWER PIPE		
MANHOLE		
CATCH BASIN		
CURB INLET		
JUNCTION		
℄ DITCH		
CULVERT		
SURVEY BAR		
SURVEY MONUMENT		
TREE – DECIDUOUS		
TREE – CONIFEROUS		
HYDRO		
HYDRO POLE		
LAMP STANDARD		
HYDRO POLE W/STREET LIGHTING		
POLE		
GUY ANCHOR		
M.T.S. POLE		
PEDESTAL OR BOX		
CABINET		
M.T.S., SHAW, OR VIDEON		
TRAFFIC SIGNALS		
TRAFFIC LIGHT STANDARD		
GAS		
STEAM		
FIBRE OPTIC		
FENCE		
EDGE OF PAVEMENT OR GUTTER		
EDGE UNPAVED OR GRAVEL ROAD		
℄		
PROJECTED ℄		
LOT LINE		
SIDEWALK – PATHWAY		
EASEMENT		
EDGE OF BUILDING		
MAILBOX		
PARKING METER		
TEST HOLE		
TREE LINE OR BUSH		

PROFILE

DESCRIPTION	EXISTING	PROPOSED
WATER PIPE		
HYDRANT TOP		
VALVE		
TEE OR CROSS		
COUPLING OR BEND		
REDUCER		
END OF PIPE		
SEWER PIPE		
UNPAVED GROUND SURFACE		
PAVED GROUND SURFACE – ℄ PIPE		
GUTTER (NORTH AND WEST)		
GUTTER (SOUTH AND EAST)		
℄ DITCH (NORTH AND WEST)		
℄ DITCH (SOUTH AND EAST)		
STRUCTURE		
MANHOLE OR CATCH BASIN		

FOR INDEX SEE G-1001

[redacted]

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on
ELEV. 232.525m top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	–	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 14	DATE	25/05/14

PLOT DATE: 2025 05 14
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
G-1001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

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CITY DRAWING NUMBER
G-1001

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FILE NAME: 60728226-SHT-00-G-1001.dwg

PLAZA DRIVE

ABINOJII MIKANAH

AWASISAK MESKANOW GREENWAY

GLENGARRY DRIVE

THATCHER DRIVE

D'ARCY DRIVE

RED RIVER

N

FOR CONTINUATION
SEE DWG C-1001

HYDRO OH

HYDRO

MTS

TELUS

760 LDS

600 PCCP FOM

1370 MONO CONC PIPE

1350 MONO CONC PIPE

1350 WWTS

1350 INT

1650 AQUEDUCT

900 HDPE SIPHON (ABAND)

900 RCP OUTFALL

900 HDPE

200 VENT PIPE

D'ARCY PUMPING STATION

400mm DR 17 HDPE EMERGENCY BYPASS

SOUTH GATE CHAMBER

WEST GATE CHAMBER

APPROXIMATE AREA BYPASS PUMP AND GENERATORS LOCATED

WEST TUNNEL SHAFT

EXISTING SIPHON CHAMBER

DISCHARGE MH

AIR RELEASE VALVE CHAMBER

UPSTREAM SIPHON CHAMBER

TH24-01

TH24-02

TH24-03

AQUEDUCT WORKING LIMITS (TYP)

5.00

5.00

EXISTING ACCESS ROAD
(TO BE MODIFIED BY CONTRACTOR AS REQUIRED TO FACILITATE CONSTRUCTION)

LAYDOWN AREA WILL BE MADE AVAILABLE TO CONTRACTOR AFTER DECEMBER 15th, 2025 TO ACCOMMODATE REHABILITATION WORKS AROUND D'ARCY LIFT STATION

CONTRACTOR LAYDOWN AREA

2-914ø DR 11 CARRIER PIPE
C/W 2100ø CASING PIPE

NSWL
EL 224.312

CONTRACTOR TO MAINTAIN ACTIVE TRANSPORTATION ACCESS THROUGHOUT CONSTRUCTION

FFL
EL 231.60

CONSTRUCTION ACCESS APPROACH
(TO BE CONSTRUCTED BY CONTRACTOR)

INSTALL SECURITY FENCE
AROUND LAYDOWN AREA (TYP)

CONTRACTOR TO MAINTAIN ACTIVE TRANSPORTATION ACCESS THROUGHOUT CONSTRUCTION

CONSTRUCTION ACCESS VIA GLENGARRY DRIVE AND D'ARCY DRIVE (TO BE CONSTRUCTED BY CONTRACTOR)

CONTRACTOR LAYDOWN AREA

NOTE:
IMPLEMENT APPROPRIATE TRAFFIC CONTROL MEASURES FOR ACCESSING THE SITE PER SPECIFICATIONS.
RESTORE ROADWAY UPON COMPLETION OF CONSTRUCTION.

FOR INDEX SEE
G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5	0.0 250 500 mm — 1:10	0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25	0.0 1000 2000 mm — 1:40	0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250	0.0 10.0 20.0 30.0 m — 1:500	0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

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B.M. Z63-11
ELEV. 232.525m
Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:750	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13

Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
C-1000

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

GENERAL PLAN
CONSTRUCTION & STAGING
WEST BANK

SHEET 3 OF 32

CITY DRAWING NUMBER
C-1000

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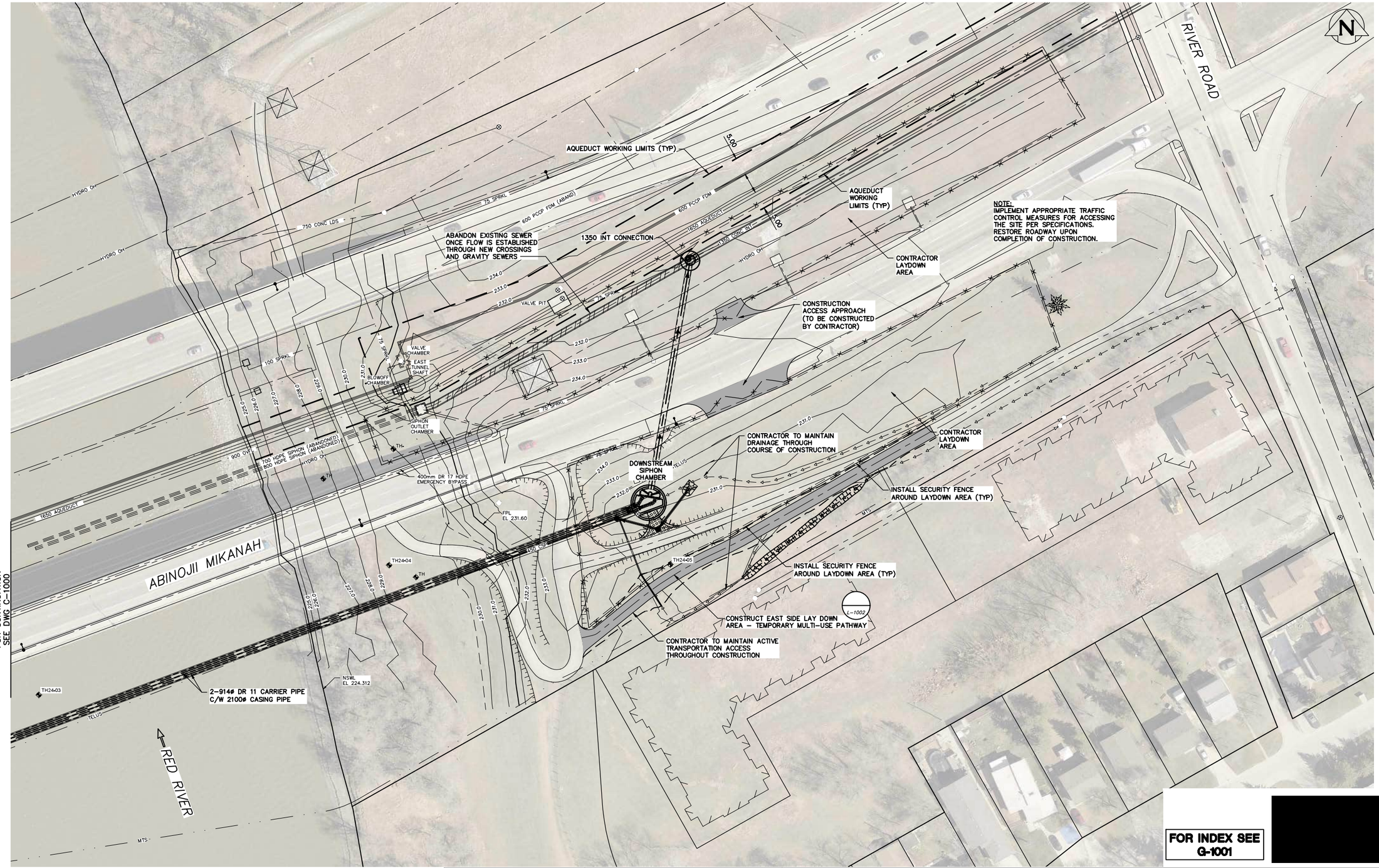

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
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0.0 500 1000 1500 mm — 1:25	0.0 1000 2000 mm — 1:40	0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250	0.0 10.0 20.0 30.0 m — 1:500	0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

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0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:500	RELEASED FOR CONSTRUCTION	
VERTICAL	–		R. LUCKY
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13

Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
C-1001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

GENERAL PLAN
CONSTRUCTION & STAGING
EAST BANK

SHEET 4 OF 32

CITY DRAWING NUMBER
C-1001

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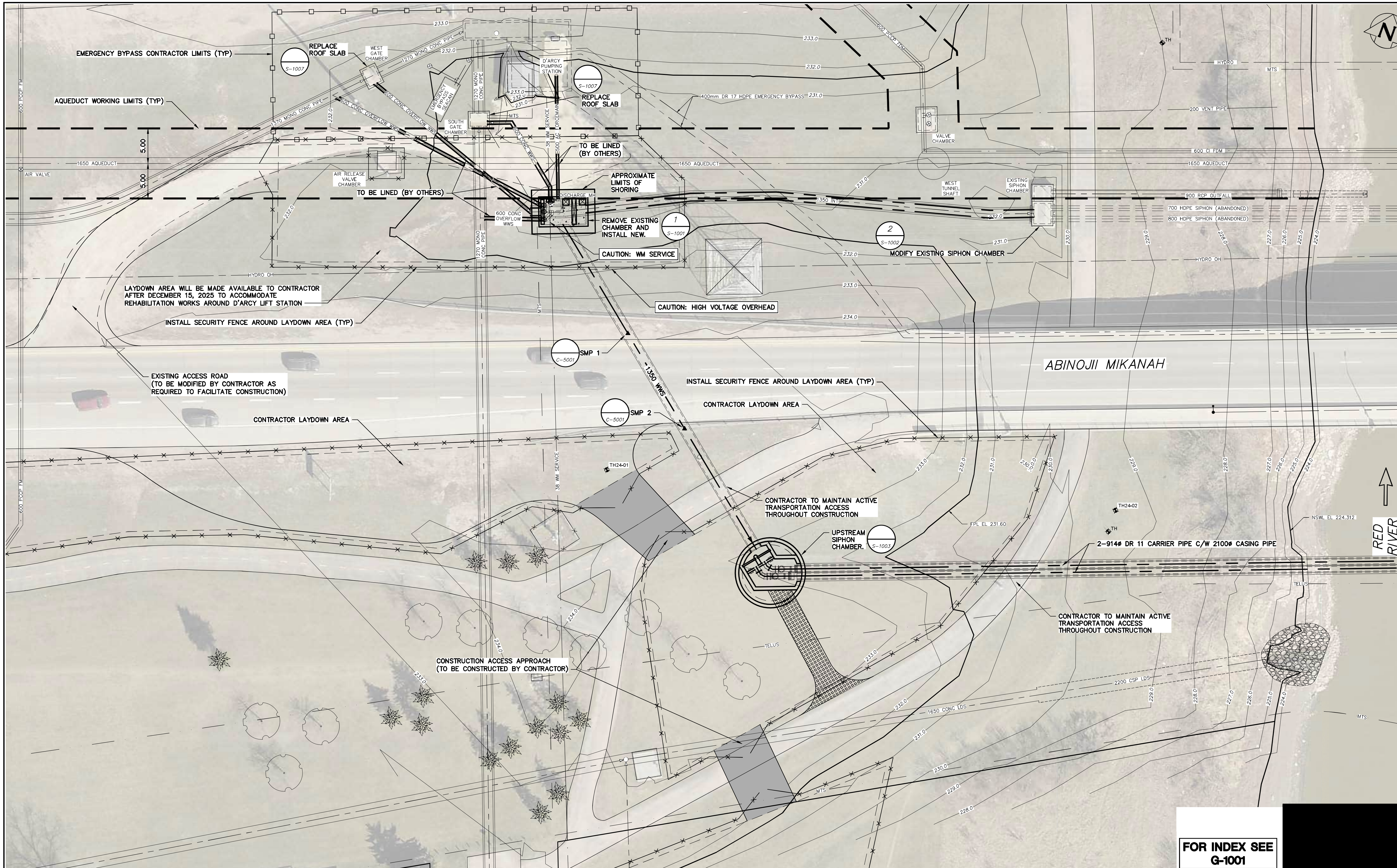

EMERGENCY BYPASS CONTRACTOR LIMITS (TYP)
REPLACE ROOF SLAB
S-1007
WEST GATE CHAMBER
1270 MONO CONC PIPE
D'ARCY PUMPING STATION
REPLACE ROOF SLAB
S-1007
AQUEDUCT WORKING LIMITS (TYP)
EMERGENCY BYPASS PLUGGED
SOUTH GATE CHAMBER
MTS
400mm DR 17 HDPE EMERGENCY BYPASS
200 VENT PIPE
VALVE CHAMBER
TO BE LINED (BY OTHERS)
1650 AQUEDUCT
600 CI FDM
AIR VALVE
AIR RELEASE VALVE CHAMBER
APPROXIMATE LIMITS OF SHORING
TO BE LINED (BY OTHERS)
DISCHARGE MH
WEST TUNNEL SHAFT
EXISTING SIPHON CHAMBER
900 RCP OUTFALL
1350 INT
700 HDPE SIPHON (ABANDONED)
800 HDPE SIPHON (ABANDONED)
600 CONC OVERFLOW WWS
REMOVE EXISTING CHAMBER AND INSTALL NEW.
1
S-1001
2
S-1002
MODIFY EXISTING SIPHON CHAMBER
CAUTION: WM SERVICE
HYDRO OH
LAYDOWN AREA WILL BE MADE AVAILABLE TO CONTRACTOR AFTER DECEMBER 15, 2025 TO ACCOMMODATE REHABILITATION WORKS AROUND D'ARCY LIFT STATION
CAUTION: HIGH VOLTAGE OVERHEAD
INSTALL SECURITY FENCE AROUND LAYDOWN AREA (TYP)
SMP 1
C-5001
1350 WWS
ABINOJII MIKANAH
EXISTING ACCESS ROAD (TO BE MODIFIED BY CONTRACTOR AS REQUIRED TO FACILITATE CONSTRUCTION)
INSTALL SECURITY FENCE AROUND LAYDOWN AREA (TYP)
CONTRACTOR LAYDOWN AREA
SMP 2
C-5001
CONTRACTOR LAYDOWN AREA
TH24-01
38 WM SERVICE
CONTRACTOR TO MAINTAIN ACTIVE TRANSPORTATION ACCESS THROUGHOUT CONSTRUCTION
TH24-02
FPL EL 231.60
NSWL EL 224.312
RED RIVER
UPSTREAM SIPHON CHAMBER.
S-1003
2-914ø DR 11 CARRIER PIPE C/W 2100ø CASING PIPE
TELUS
CONTRACTOR TO MAINTAIN ACTIVE TRANSPORTATION ACCESS THROUGHOUT CONSTRUCTION
CONSTRUCTION ACCESS APPROACH (TO BE CONSTRUCTED BY CONTRACTOR)
2200 CSP LDS
1650 CONC LDS
MTS
5.00
5.00

FOR INDEX SEE G-1001

[redacted]

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 (0.0 – 300 mm); 1:10 (0.0 – 500 mm); 1:20 (0.0 – 1000 mm)
1:25 (0.0 – 1500 mm); 1:40 (0.0 – 2000 mm); 1:50 (0.0 – 3000 mm)
1:250 (0.0 – 15.0 m); 1:500 (0.0 – 30.0 m); 1:750 (0.0 – 50.0 m)

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:

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B.M. Z63–11
ELEV. 232.525m
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CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:250	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010–2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
C–1002

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

SITE PLAN
WEST BANK

SHEET 5 OF 32

CITY DRAWING NUMBER
C–1002

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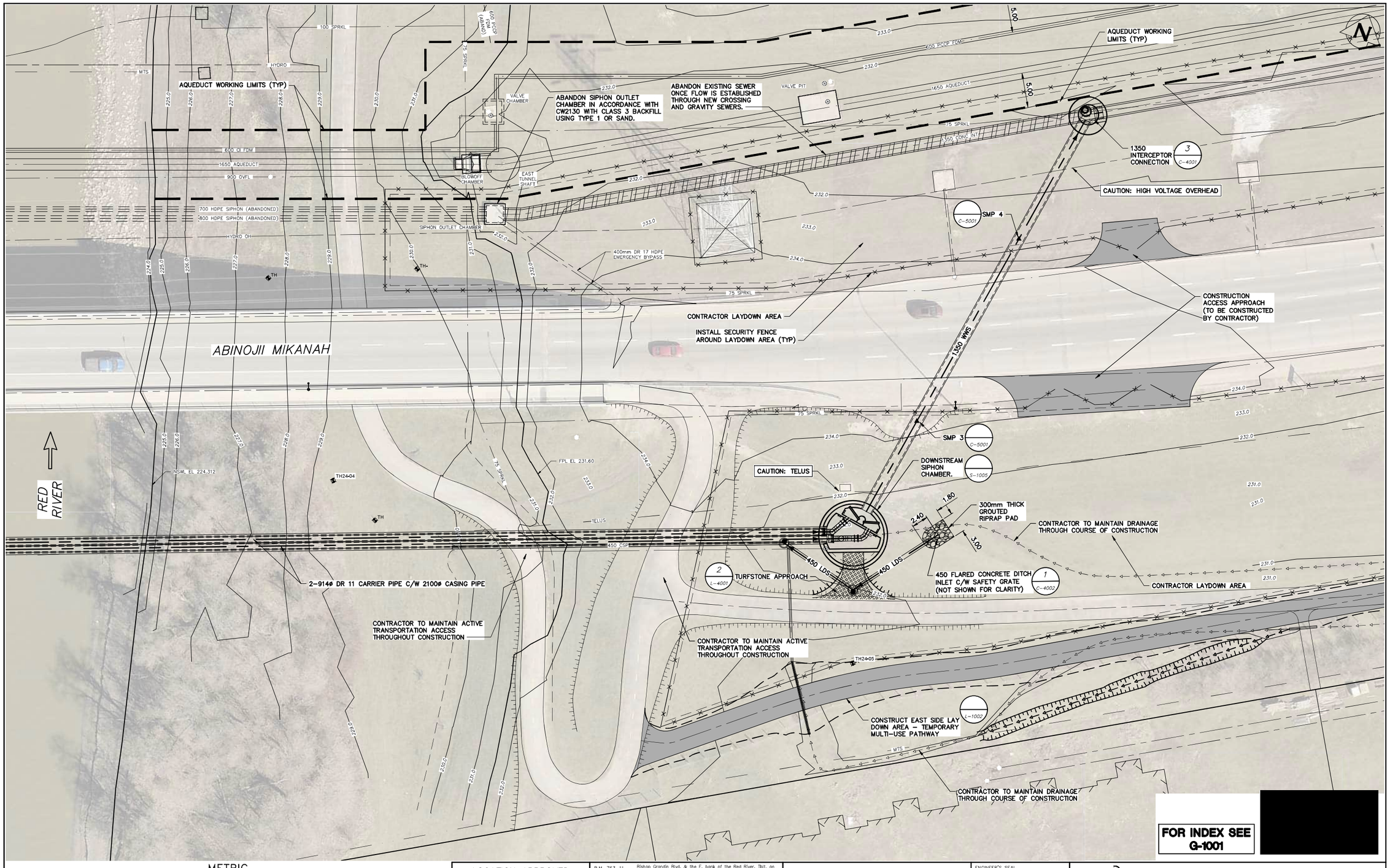

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LOCATION APPROVED
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ELEV. 232.525m

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0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:250	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
C-1003

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE FORT GARRY ST VITAL SIPHON

SITE PLAN
EAST BANK

SHEET 6 OF 32
CITY DRAWING NUMBER
C-1003

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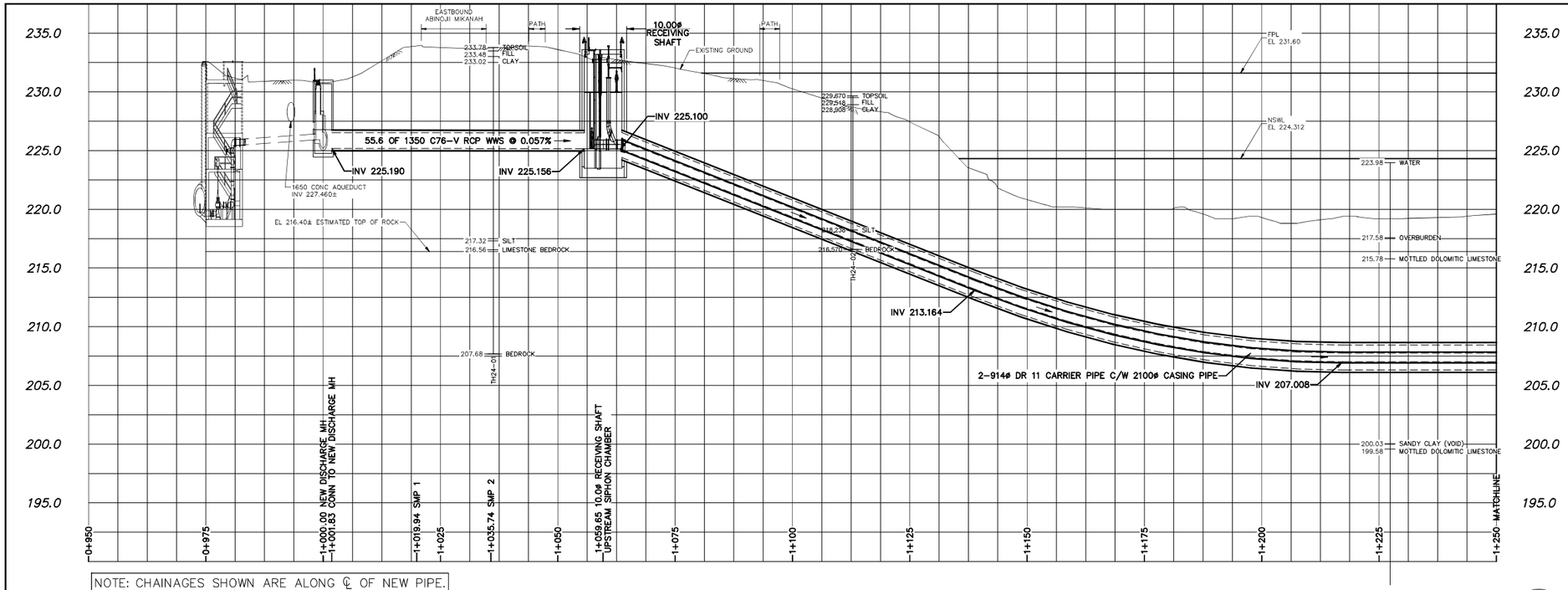
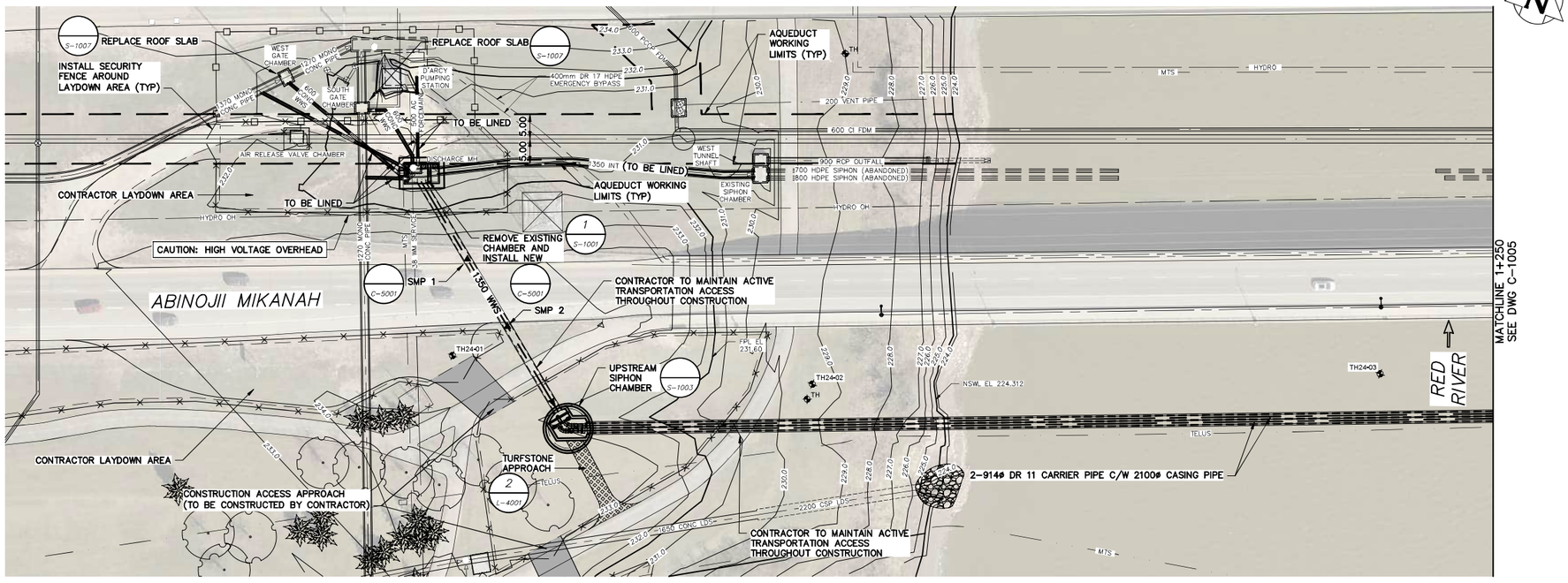


NOTE: CHAINAGES SHOWN ARE ALONG ℄ OF NEW PIPE.
STA. 1+000.000 = ℄ OF DISCHARGE MH



FOR INDEX SEE G-1001

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
1:20 — 0.0 500 1000 mm
1:25 — 0.0 500 1000 1500 mm
1:40 — 0.0 1000 2000 mm
1:50 — 0.0 1000 2000 3000 mm
1:250 — 0.0 5.0 10.0 15.0 m
1:500 — 0.0 10.0 20.0 30.0 m
1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

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CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:500	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	1:200	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
C-1004

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
D'ARCY PUMPING STATION
TO MATCHLINE 1+250

SHEET 7 OF 32
CITY DRAWING NUMBER
C-1004

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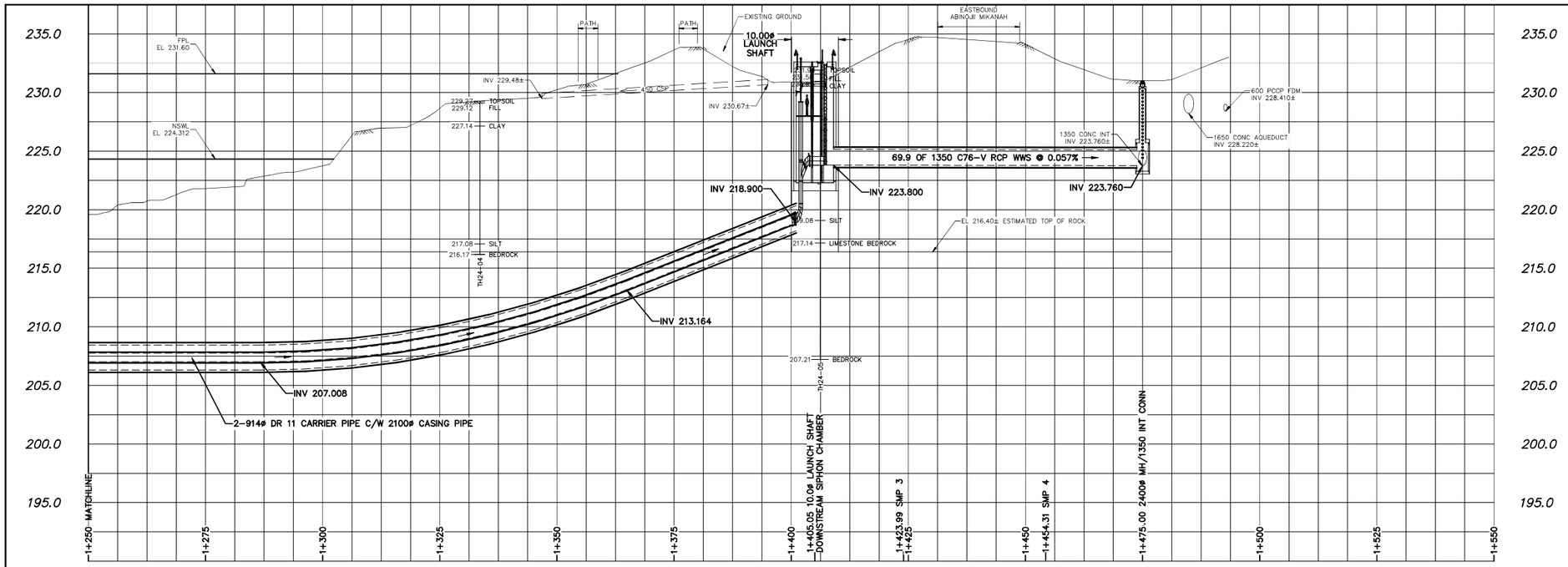
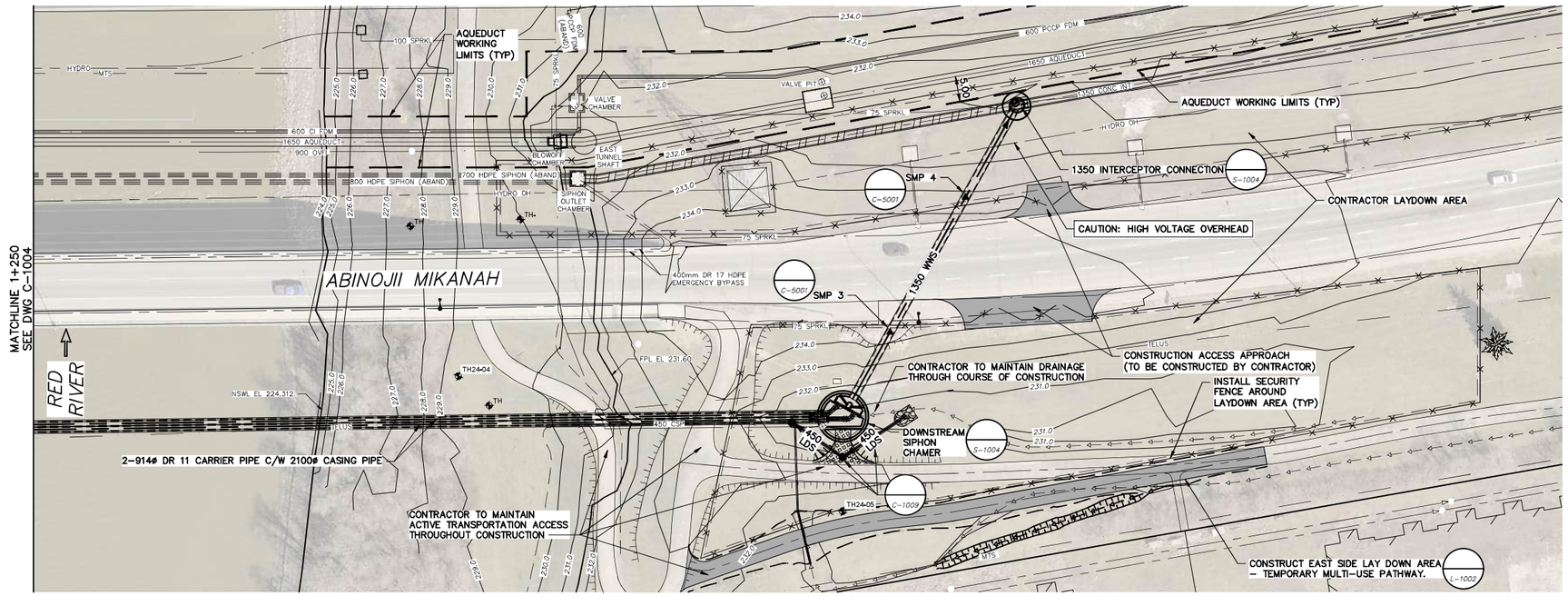


NOTE: CHAINAGES SHOWN ARE ALONG ℄ OF NEW PIPE.
STA. 1+000.000 = ℄ OF DISCHARGE MH



FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
1:20 — 0.0 500 1000 mm
1:25 — 0.0 500 1000 1500 mm
1:40 — 0.0 1000 2000 mm
1:50 — 0.0 1000 2000 3000 mm
1:250 — 0.0 5.0 10.0 15.0 m
1:500 — 0.0 10.0 20.0 30.0 m
1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. 263-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:500	RELEASED FOR CONSTRUCTION	
VERTICAL	1:200		R. LUCKY
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
C-1005

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
MATCHLINE 1+250
TO 1350 INTERCEPTOR

SHEET 8 OF 32
CITY DRAWING NUMBER
C-1005

FILE PATH: C:\Users\lelppia\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\C\SHT\
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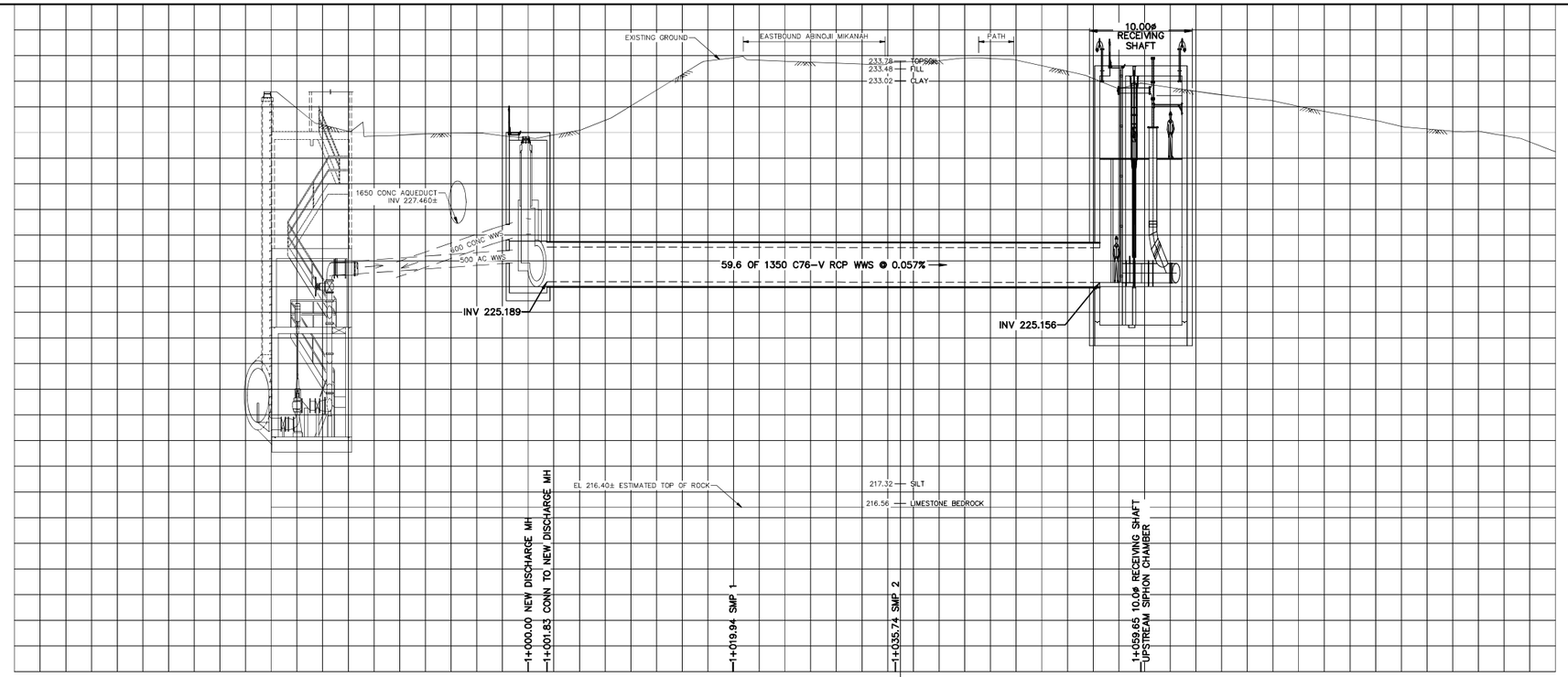
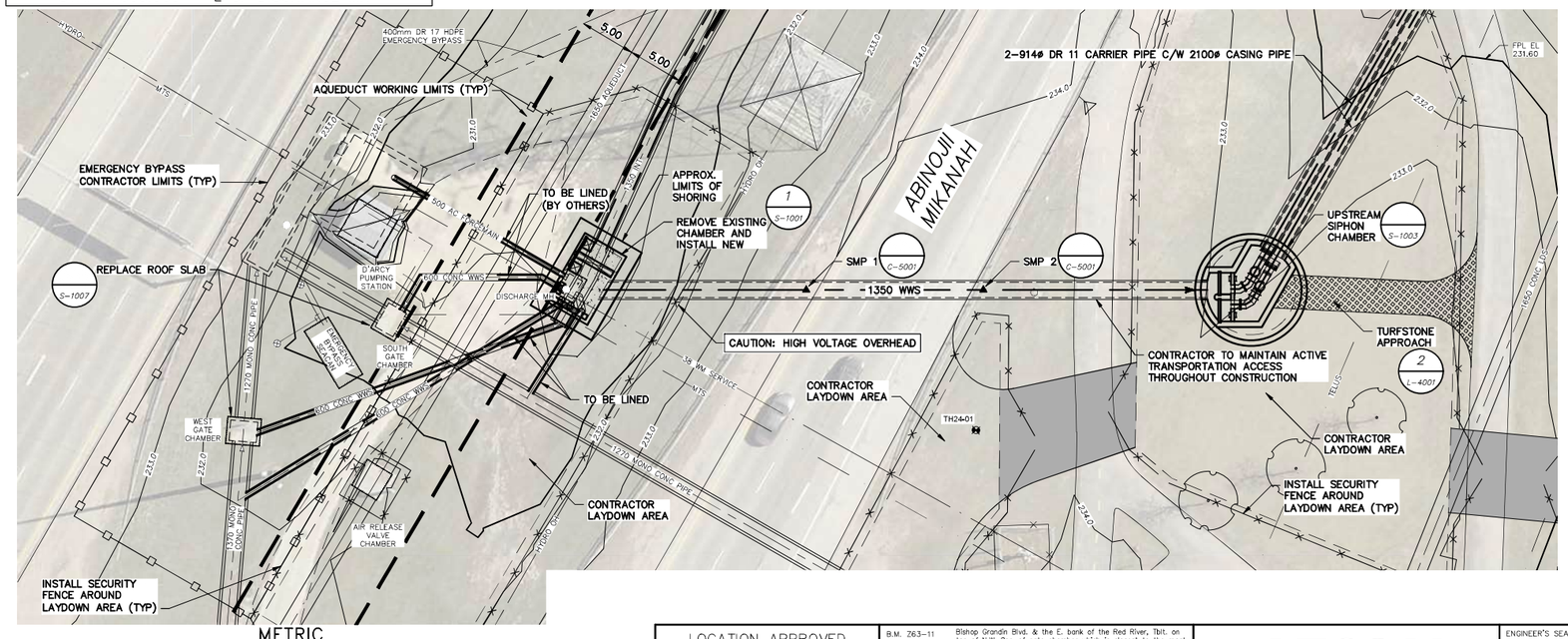


NOTE: CHAINAGES SHOWN ARE ALONG ℄ OF NEW PIPE.
STA. 1+000.000 = ℄ OF DISCHARGE MH



FOR INDEX SEE G-1001

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METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
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B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:250	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	1:100	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
C-1006

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
EXISTING DISCHARGE MANHOLE
TO PROPOSED UPSTREAM SIPHON CHAMBER

SHEET 9 OF 32
CITY DRAWING NUMBER
C-1006

FILE PATH: C:\Users\elippia\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\C\SHT\
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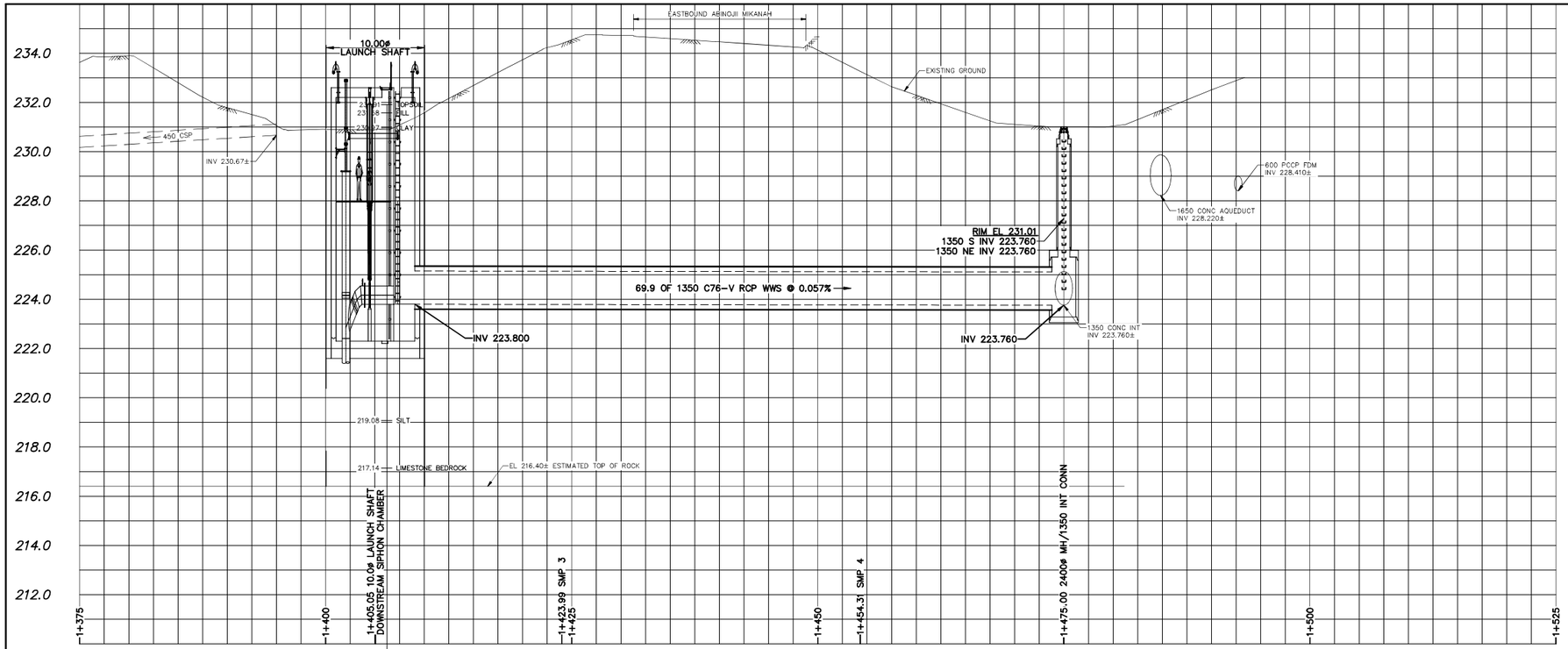
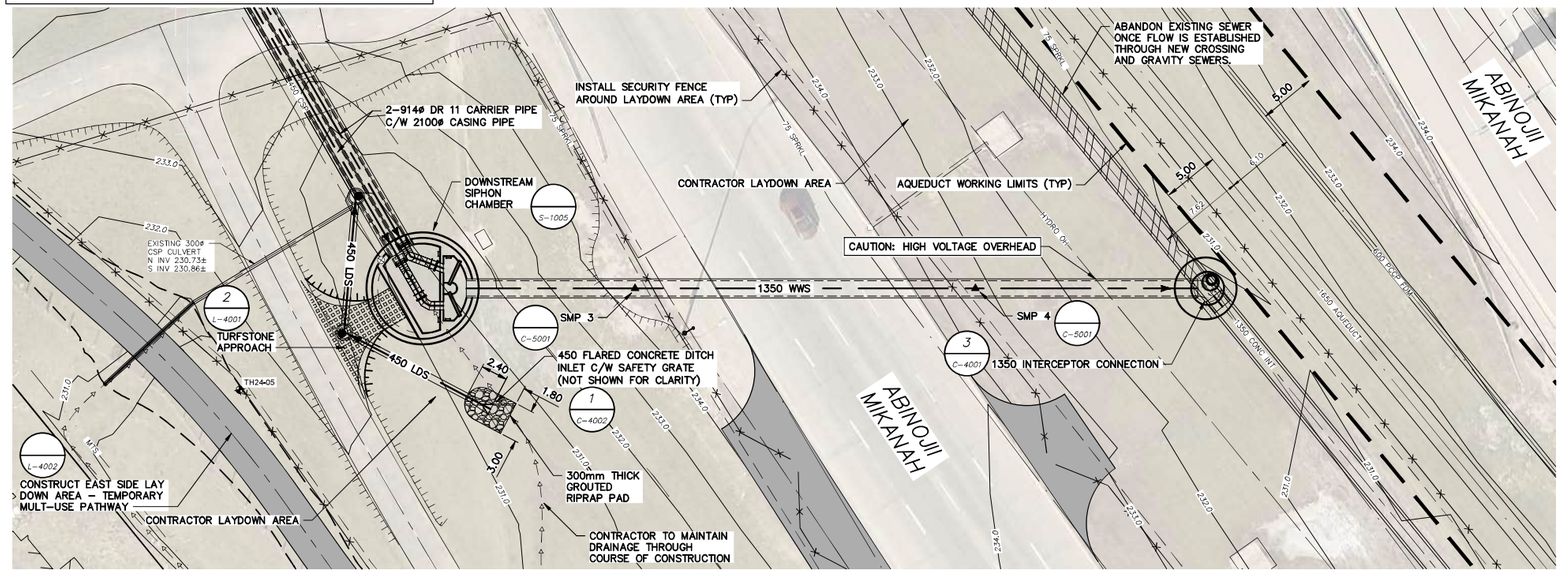


NOTE: CHAINAGES SHOWN ARE ALONG ℄ OF NEW PIPE.
STA. 1+000.000 = ℄ OF DISCHARGE MH



FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
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LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
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B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:250	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	1:100		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
C-1007

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
PROPOSED DOWNSTREAM SIPHON CHAMBER TO 1350 INTERCEPTOR

SHEET 10 OF 32
CITY DRAWING NUMBER
C-1007

FILE PATH: C:\Users\eippili\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\C\SHT\
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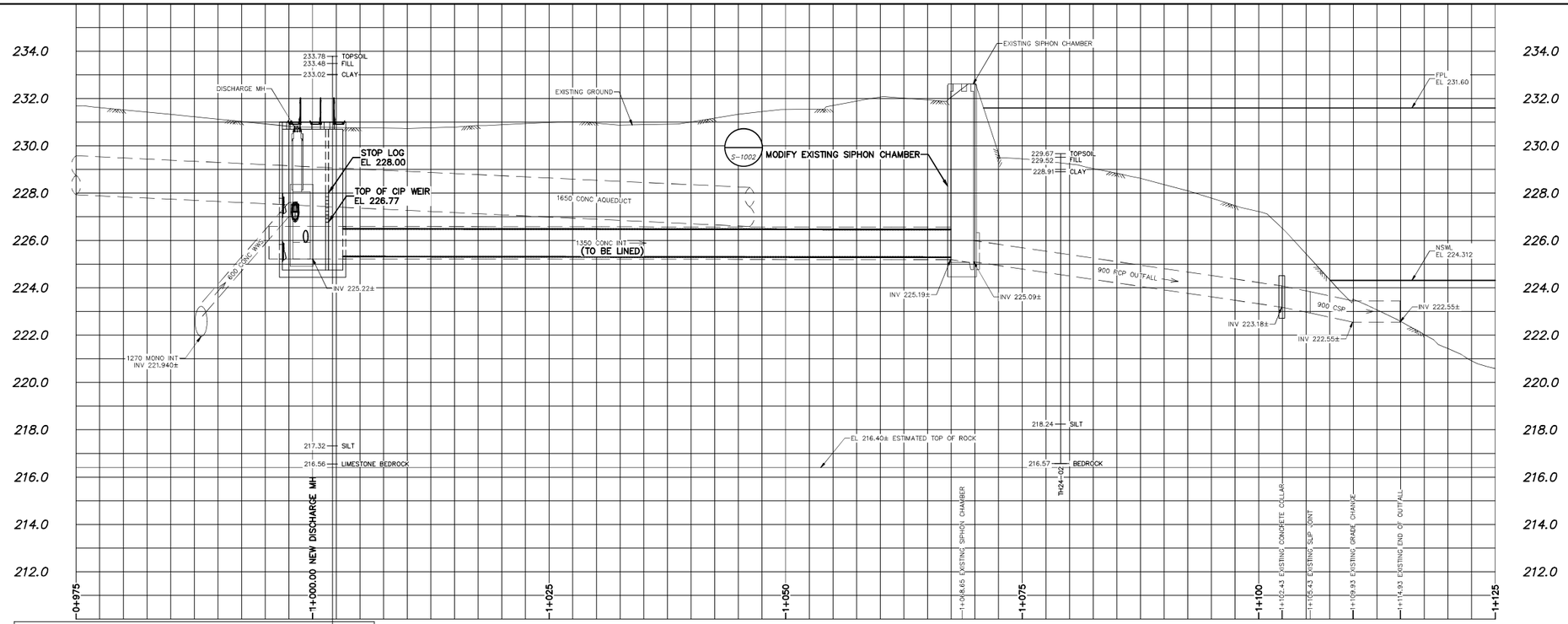
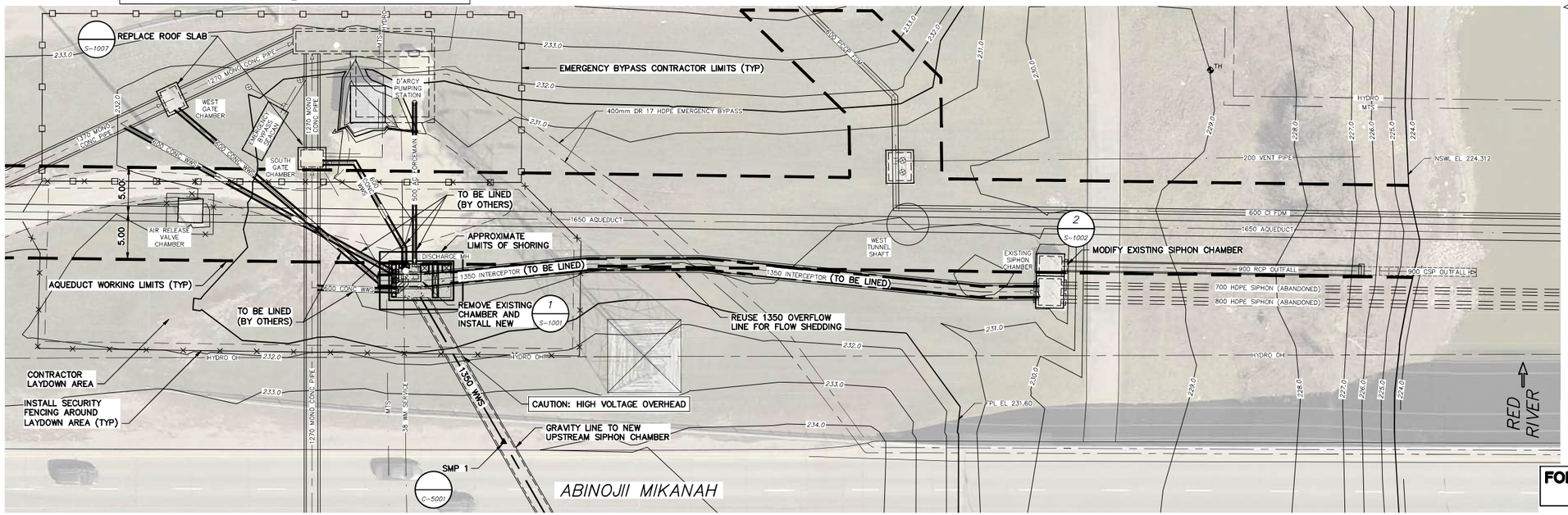


NOTE: CHAINAGES SHOWN ARE ALONG ℄ OF 1350 INT.
STA. 1+000.000 = ℄ OF DISCHARGE MH



FOR INDEX SEE G-1001

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METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
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1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
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B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:250	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	1:100		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
C-1008

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
EXISTING DISCHARGE MANHOLE
TO SIPHON INLET & OVERFLOW CHAMBERS

SHEET 11 OF 32
CITY DRAWING NUMBER
C-1008

FILE PATH: C:\Users\elpplo\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\C\SHT\
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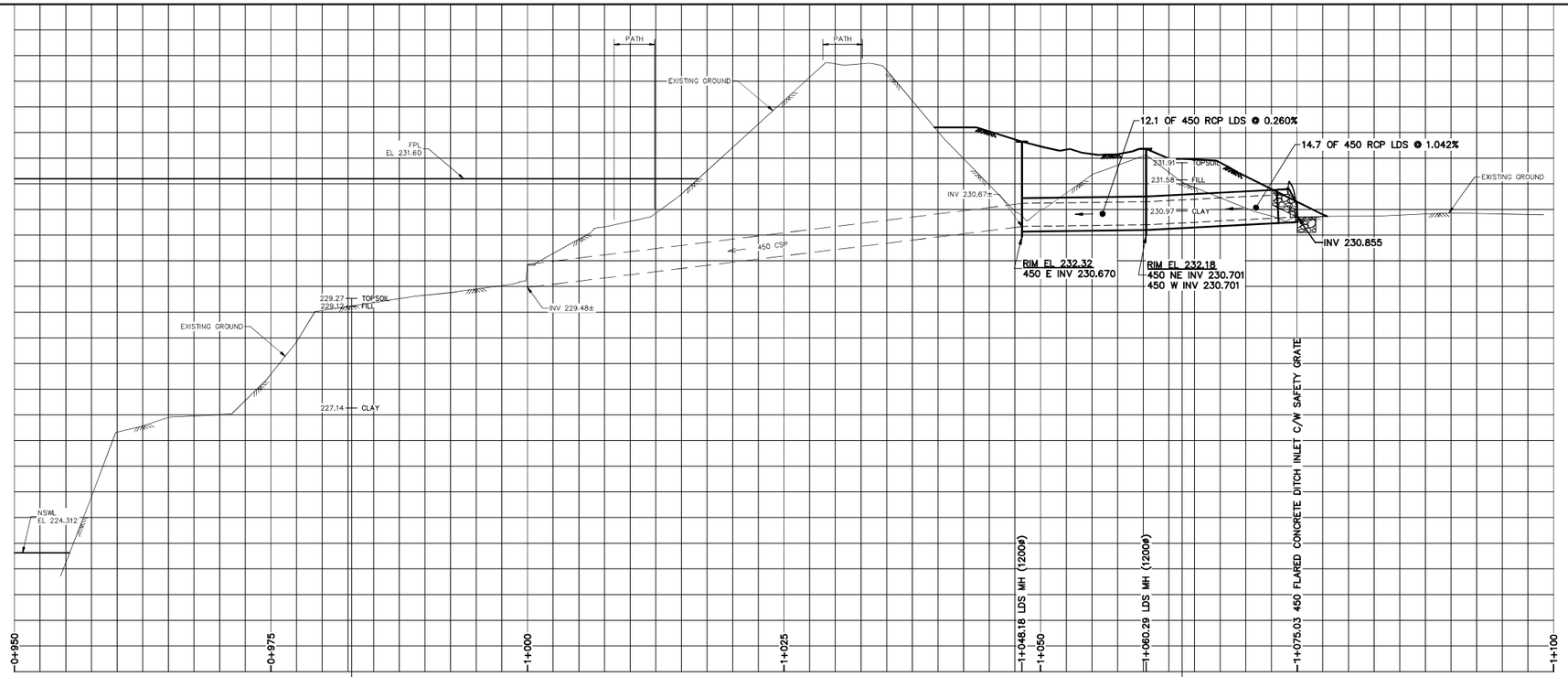
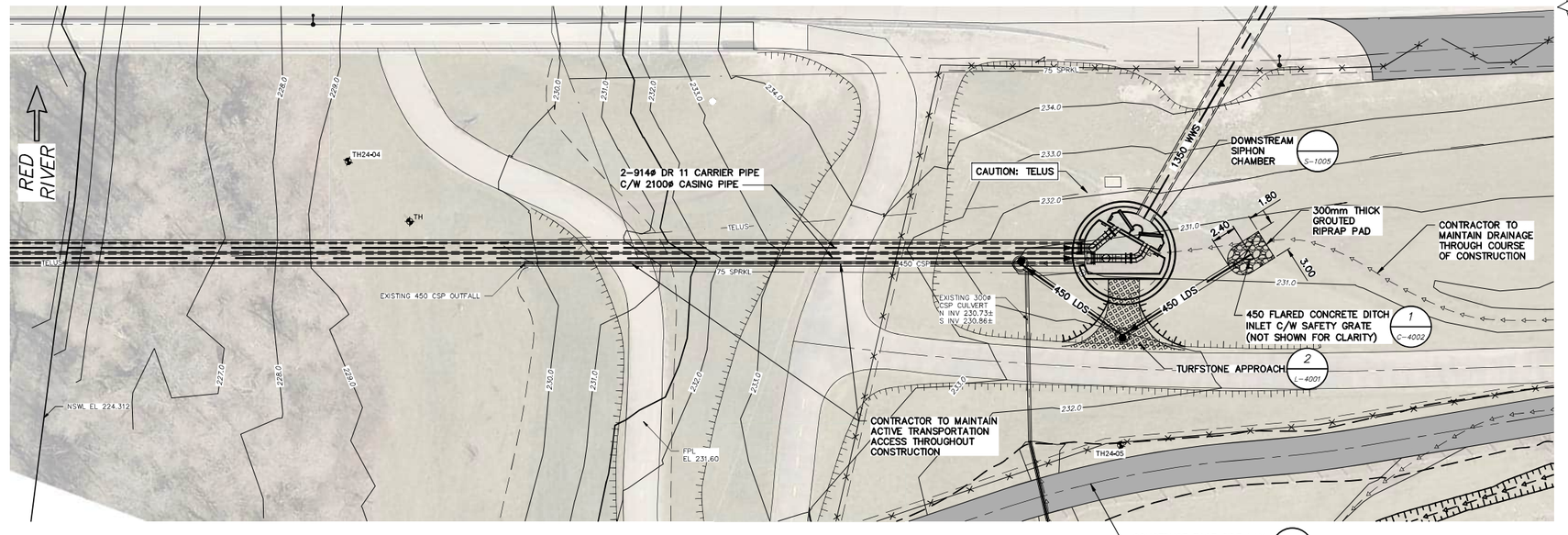


NOTE: CHAINAGES SHOWN ARE ALONG ℄ PIPE.
STA. 1+000.000 = EXISTING 450 CSP OUTFALL



FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

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B.M. Z63-11 — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.
ELEV. 232.525m

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:250	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	1:50	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
C-1009

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
PROPOSED LDS

SHEET 12 OF 32
CITY DRAWING NUMBER
C-1009

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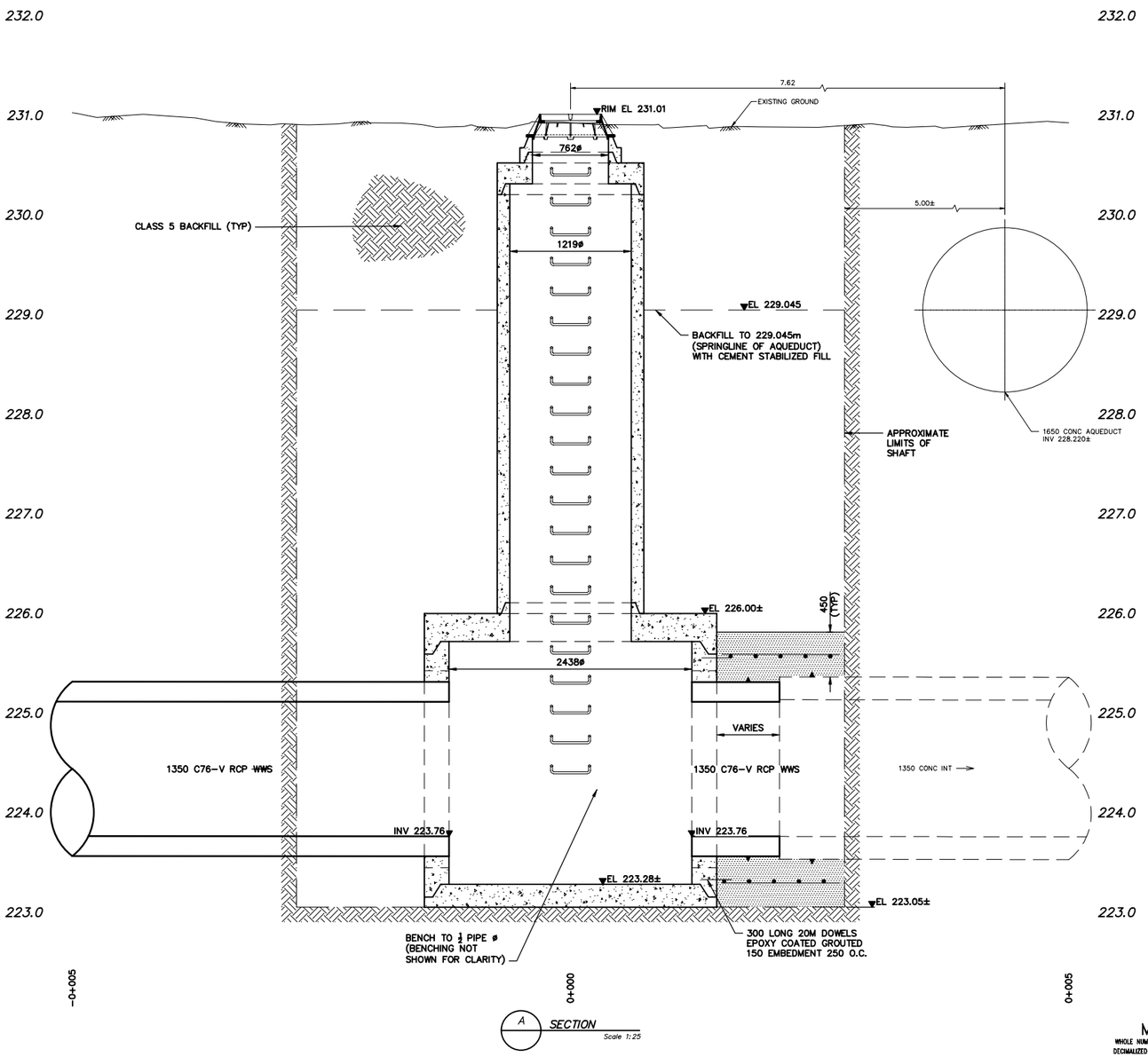

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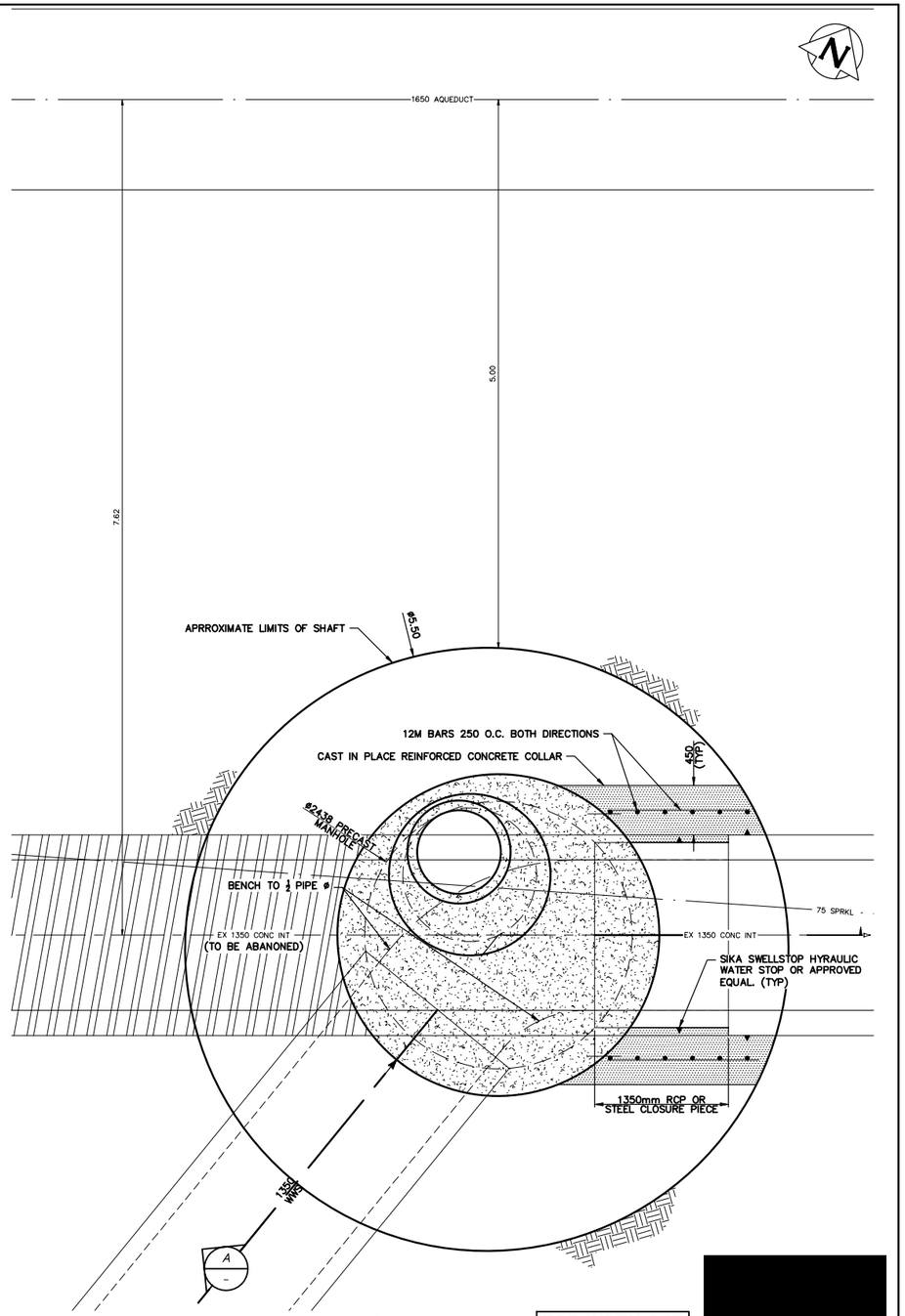

3 C-1007 DETAIL
Scale 1:25

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
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B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:25	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
C-4001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

DETAILS 1

SHEET 13 OF 32
CITY DRAWING NUMBER
C-4001

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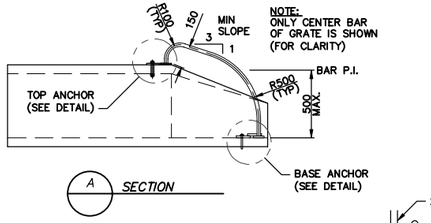
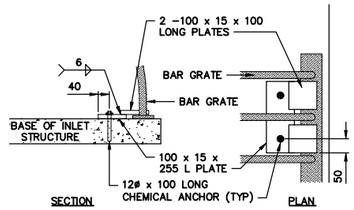
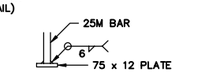
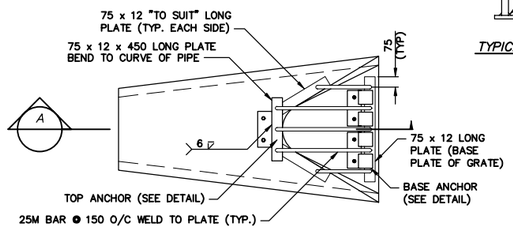




DETAIL – BASE ANCHOR
Scale 1:10

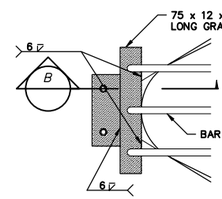


TYPICAL BAR CONNECTION
Scale 1:10

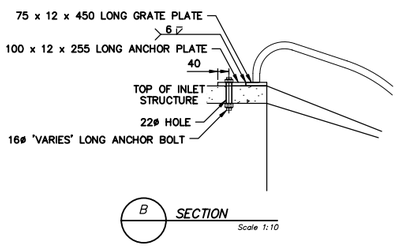


NOTE:
MAXIMUM 140mm CLEAR SPACE BETWEEN GRATE BARS.

TOP VIEW



DETAIL – TOP ANCHOR
Scale 1:10



Scale 1:10

1 / C-1009 *DETAIL – 450 FLARED CONCRETE DITCH INLET C/W SAFETY GRATE*
Scale 1:20

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
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LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
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B.M. Z63–11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	N/A		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13

Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
C-4002

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

DETAILS 2

SHEET 14 OF 32
CITY DRAWING NUMBER
C-4002

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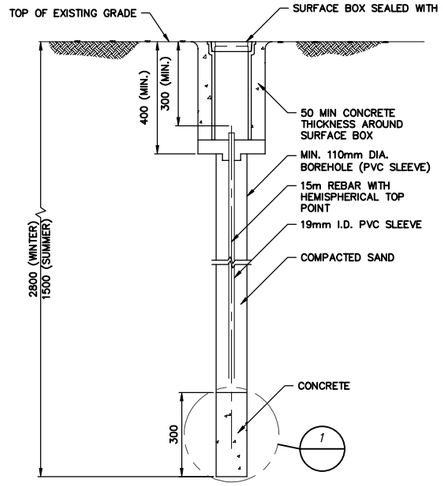
FILE NAME: 60728226-SHT-00-C-4002.dwg

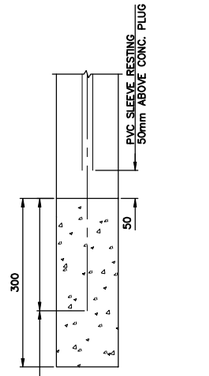
SURFACE MONITORING POINT RESPONSE LEVELS (TOTAL SETTLEMENT)					
DESCRIPTION	STATION	NORTHING	EASTING	REVIEW LEVEL (mm)	ALERT LEVEL (mm)
SMP 1	1+019.94	5520382.314	633423.825	8	11
SMP 2	1+035.74	5520372.211	633435.984	8	11
SMP 3	1+423.99	5520495.309	633781.565	8	11
SMP 4	1+454.31	5520525.198	633786.686	8	11

INSTRUMENT MONITORING SCHEDULE

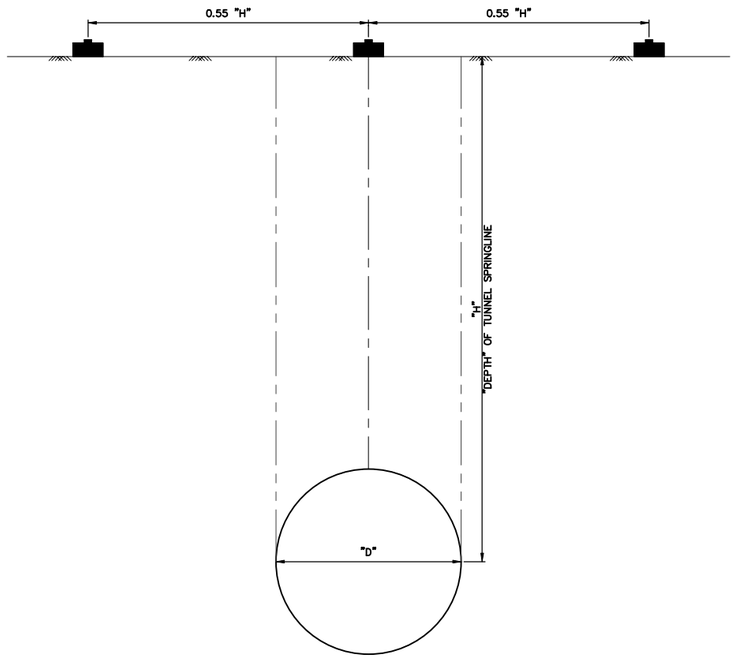
DESCRIPTION	MONITORING SCHEDULE
SMP	DAILY WHEN ADVANCING TUNNEL FACE IS 20m AWAY TO REACH THE INSTRUMENT LOCATION AND 30m PAST THE UTILITY
	1 READING 2 WEEKS AFTER THE TUNNEL PASSES INSTRUMENT LOCATION



DETAIL – SURFACE MONITORING POINT (SMP)
Scale 1:10



1 DETAIL
Scale 1:5



DETAIL – TYPICAL LAYOUT OF SMP ARRAY

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm 1:5
0.0 250 500 mm 1:10
0.0 500 1000 mm 1:20
0.0 500 1000 1500 mm 1:25
0.0 1000 2000 mm 1:40
0.0 1000 2000 3000 mm 1:50
0.0 5.0 10.0 15.0 m 1:250
0.0 10.0 20.0 30.0 m 1:500
0.0 25.0 50.0 m 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:25	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13

Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
C-5001

FOR INDEX SEE G-1001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

STANDARD DETAILS
MONITORING AND INSTRUMENTATION

SHEET 15 OF 32

CITY DRAWING NUMBER
C-5001

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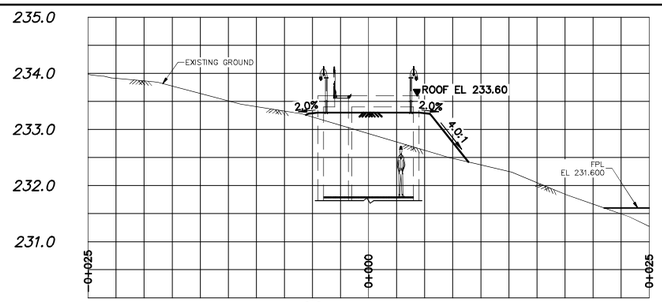
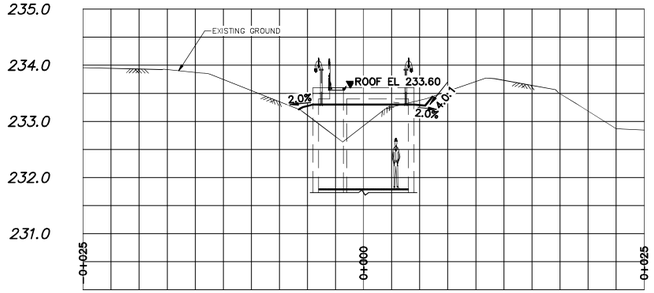
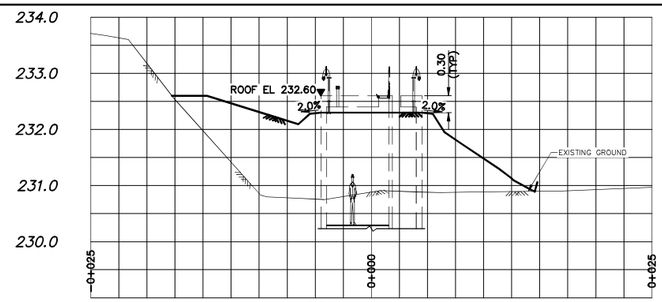


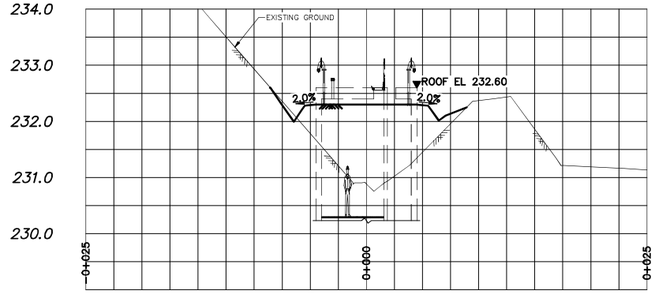
A SECTION
Scale 1:250H 1:50V



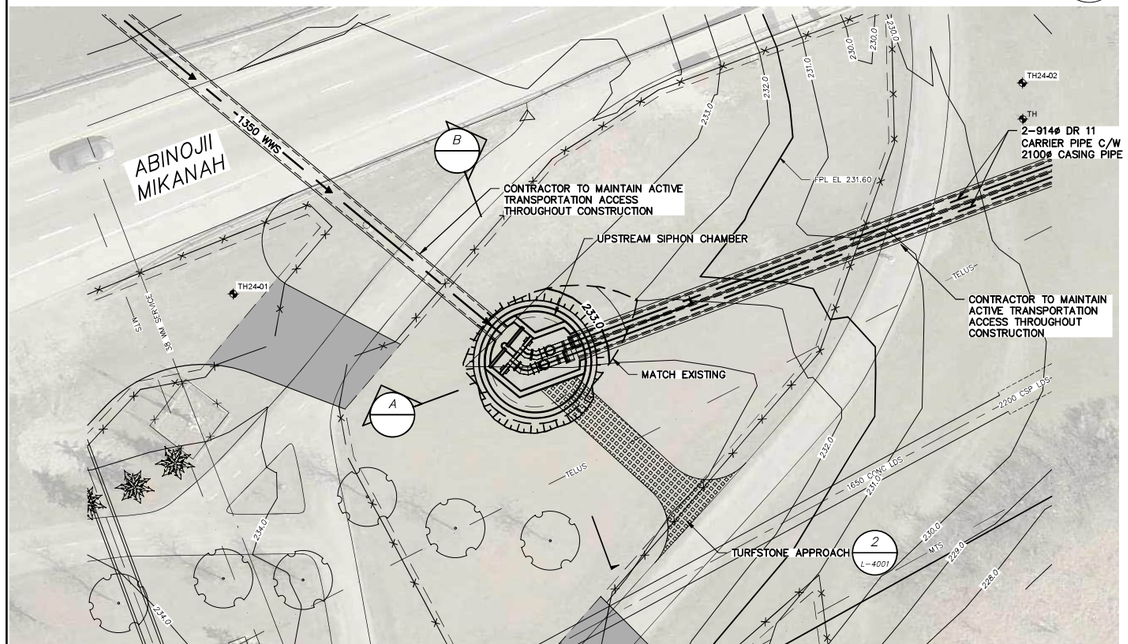
B SECTION
Scale 1:250H 1:50V



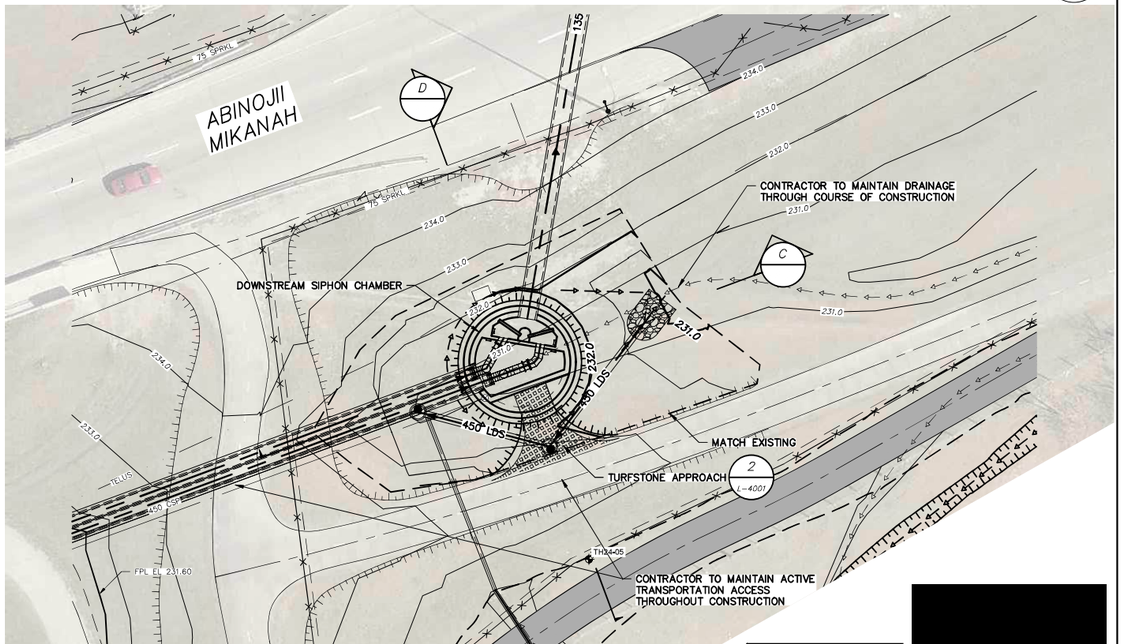
C SECTION
Scale 1:250H 1:50V



D SECTION
Scale 1:250H 1:50V



WEST BANK
Scale 1:250



EAST BANK
Scale 1:250

FOR INDEX SEE G-1001

[redacted]

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
1:20 — 0.0 500 1000 mm
1:25 — 0.0 500 1000 1500 mm
1:40 — 0.0 1000 2000 mm
1:50 — 0.0 1000 2000 3000 mm
1:250 — 0.0 5.0 10.0 15.0 m
1:500 — 0.0 10.0 20.0 30.0 m
1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.
ELEV. 232.525m

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL AS NOTED VERTICAL AS NOTED		RELEASED FOR CONSTRUCTION	R. LUCKY
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
L-1001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

SITE GRADING PLAN
WEST BANK & EAST BANK

SHEET 14 OF 32
CITY DRAWING NUMBER
L-1001

FILE PATH: C:\Users\eippla\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\L\SHT\
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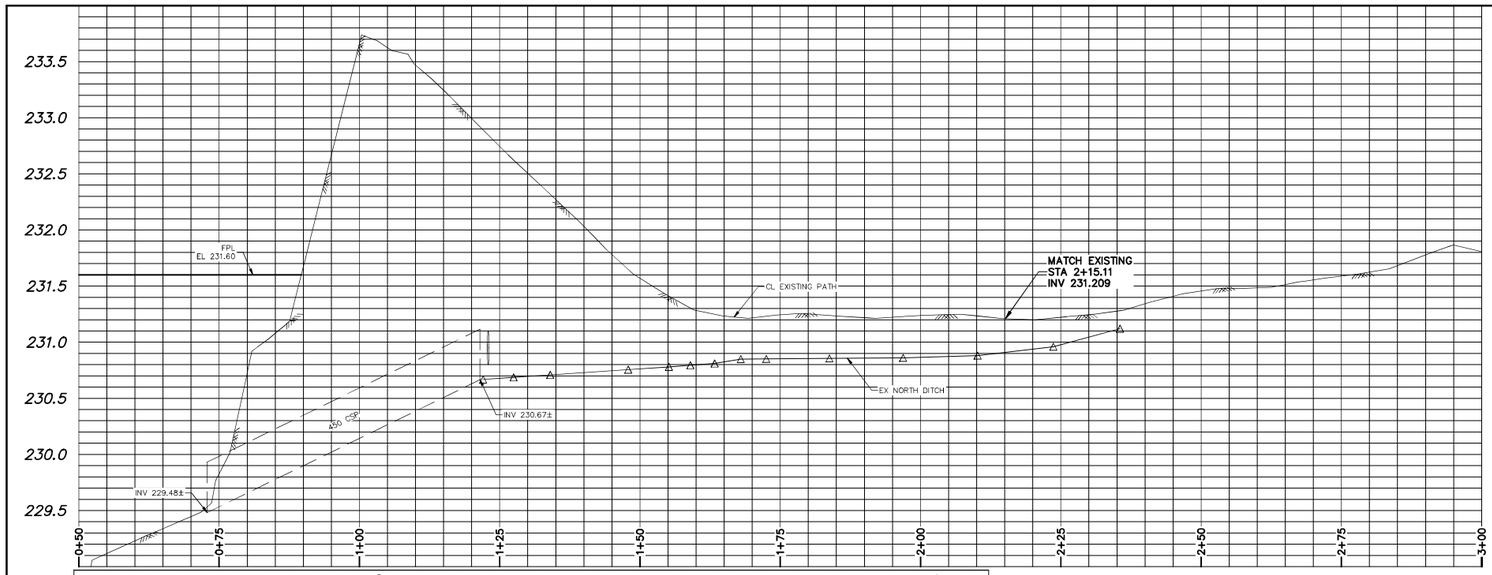
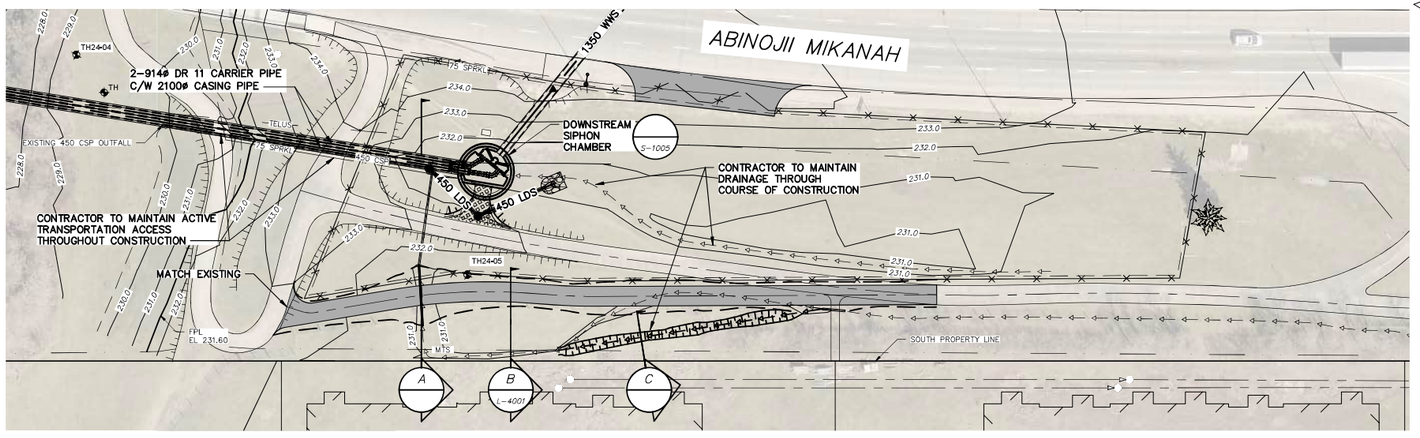
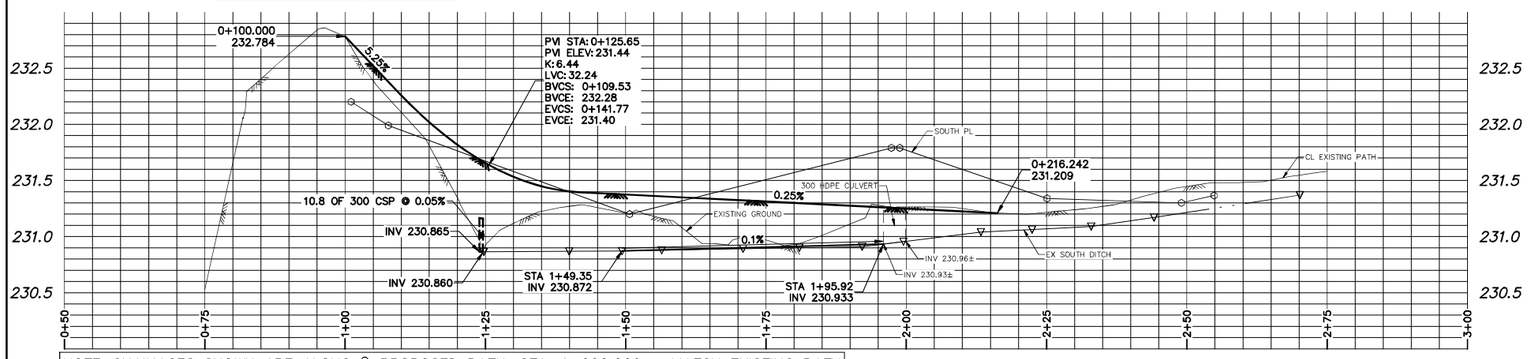
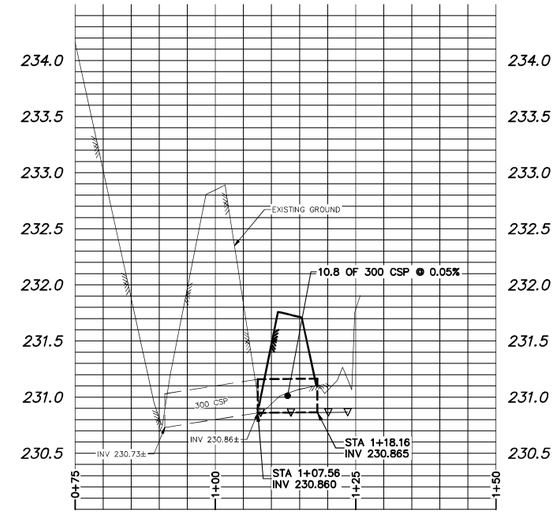


NOTE: CHAINAGES SHOWN ARE ALONG ℄ EXISTING PATH. STA. 1+000.000 = WEST LINE EXISTING PATH NORTH/SOUTH

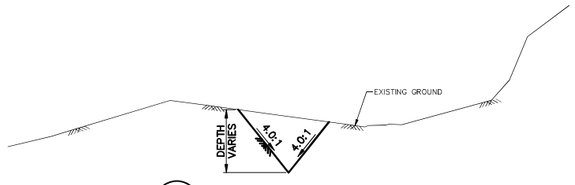




NOTE: CHAINAGES SHOWN ARE ALONG ℄ PROPOSED PATH. STA. 1+000.000 = MATCH EXISTING PATH



A SECTION



C TYPICAL SWALE CROSS-SECTION
Scale 1:50H 1:10V

FOR INDEX SEE
G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm 1:5
0.0 250 500 mm 1:10
0.0 500 1000 mm 1:20
0.0 500 1000 1500 mm 1:25
0.0 1000 2000 mm 1:40
0.0 1000 2000 3000 mm 1:50
0.0 5.0 10.0 15.0 m 1:250
0.0 10.0 20.0 30.0 m 1:500
0.0 25.0 50.0 m 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
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B.M. 263-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:500	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	1:25		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13

Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
L-1002

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PLAN / PROFILE
EAST SIDE LAYDOWN AREA
TEMPORARY MULTI-USE PATHWAY

SHEET 16 OF 32
CITY DRAWING NUMBER
L-1002

FILE PATH: C:\Users\leippla\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\L\SHT\
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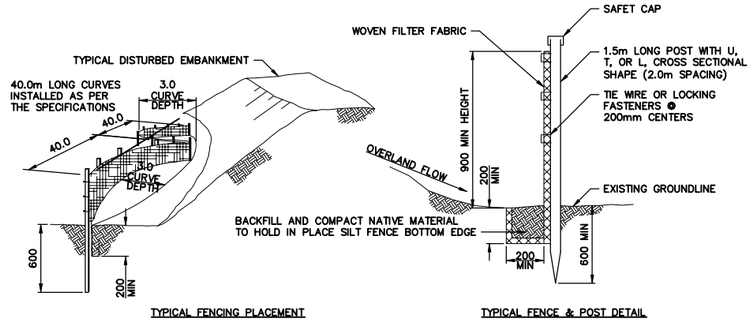
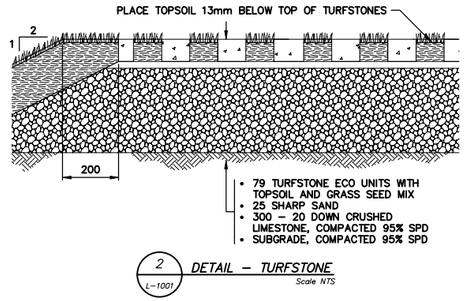
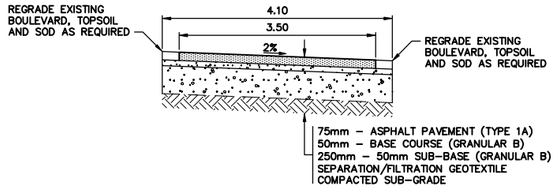


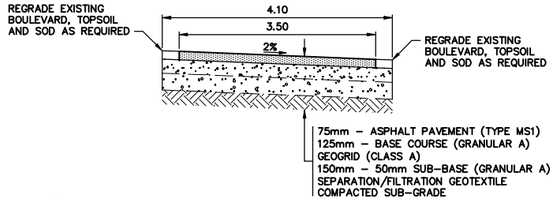
1 DETAIL – SILT FENCE INSTALLATION
Scale NTS



2 / L-1001 DETAIL – TURFSTONE
Scale NTS

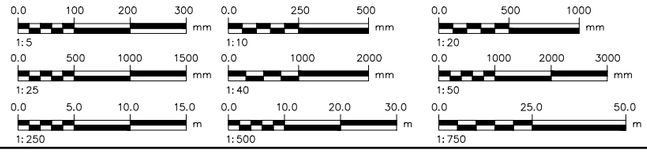


B SECTION – TEMPORARY ASPHALT PEDESTRIAN/CYCLE PATH
Scale 1:50 H / 1:25 V



C SECTION – PERMANENT ASPHALT PEDESTRIAN/CYCLE PATH
Scale 1:50 H / 1:25 V

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES



FOR INDEX SEE G-1001

[redacted]

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

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ELEV. 232.525m

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	AS NOTED		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
L-4001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE FORT GARRY ST VITAL SIPHON

SITE GRADING DETAILS

SHEET 15 OF 32
CITY DRAWING NUMBER
L-4001

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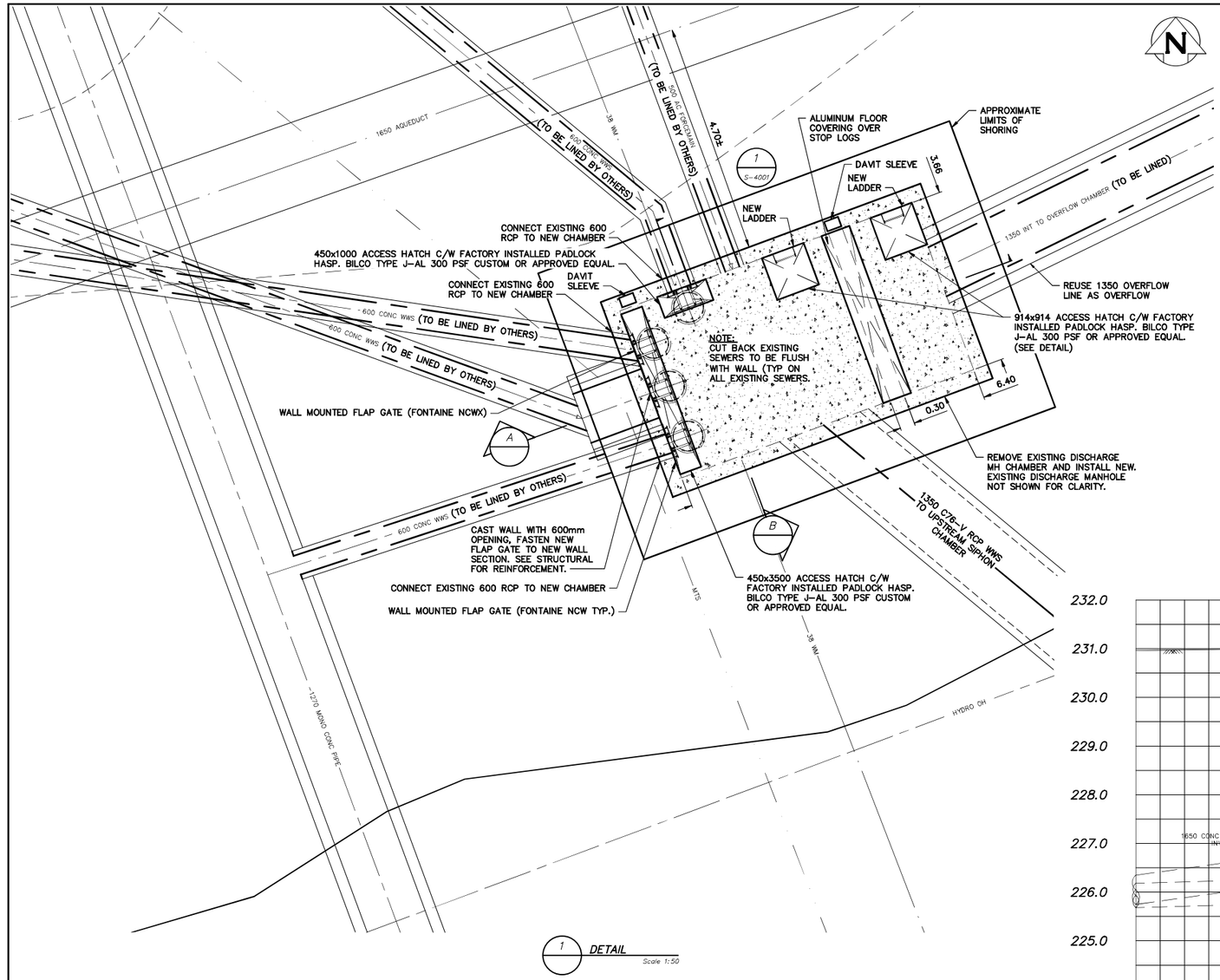
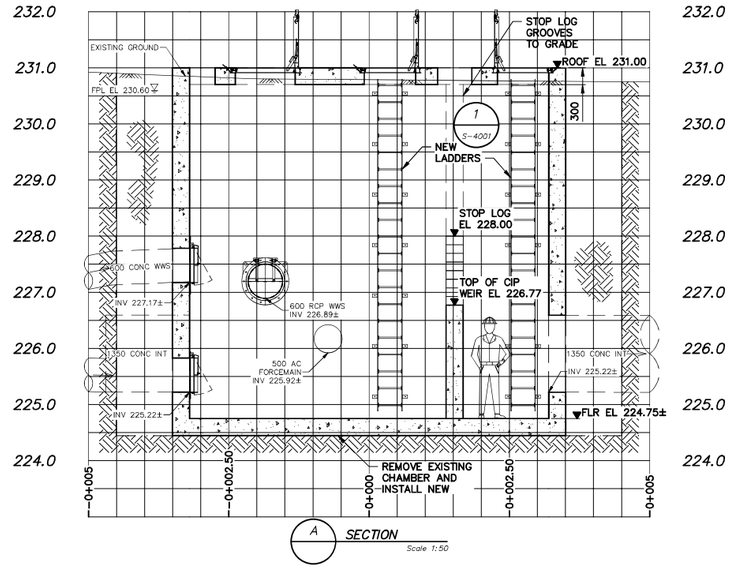
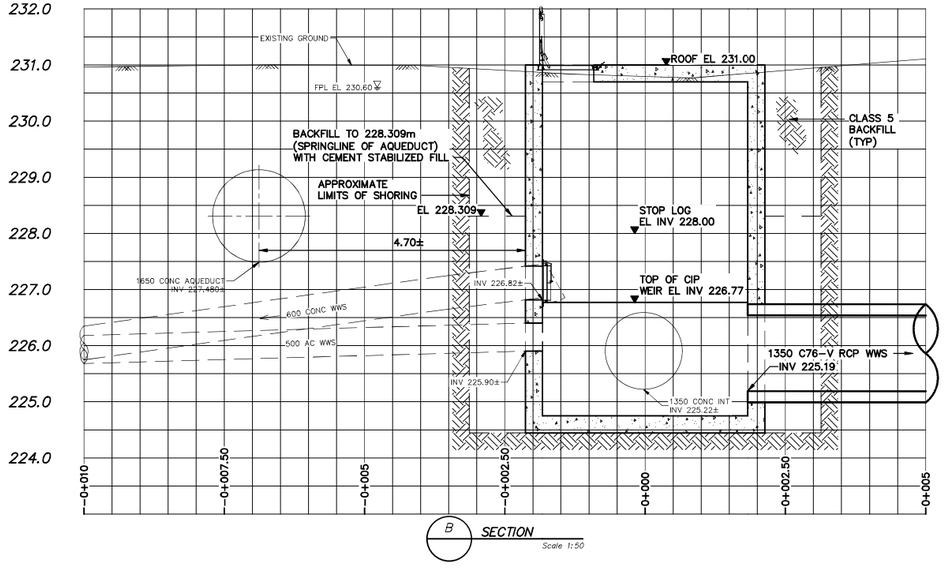


1 DETAIL
Scale 1:50



A SECTION
Scale 1:50



B SECTION
Scale 1:50

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

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CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:50	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
S-1001

Winnipeg

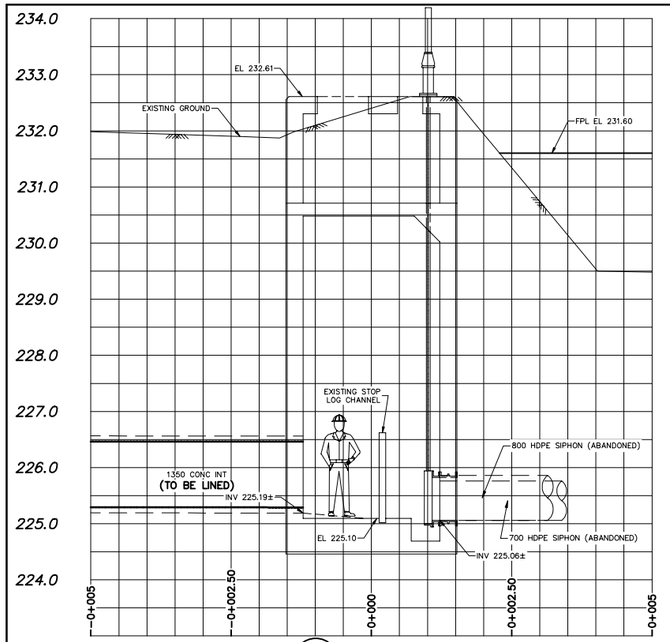
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

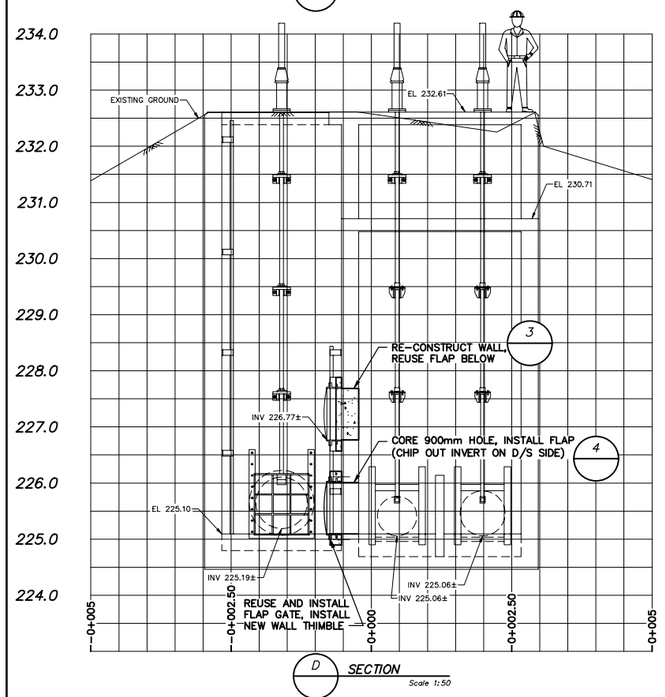
DISCHARGE MANHOLE
SECTIONS & DETAILS

SHEET 19 OF 32
CITY DRAWING NUMBER
S-1001

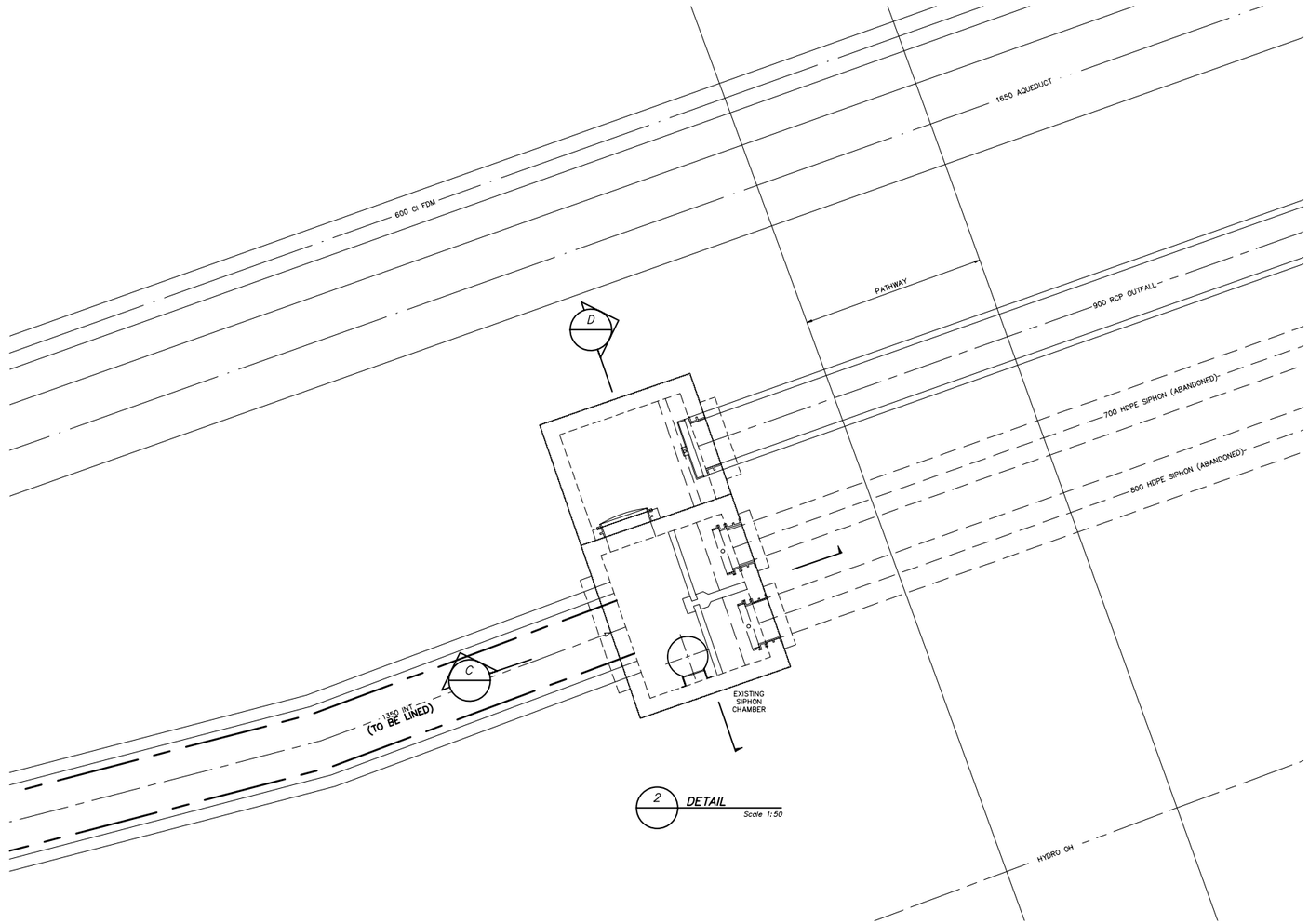
FILE PATH: C:\Users\lelppla\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
FILE NAME: 60728226-SHT-00-S-1001_S-1002.dwg



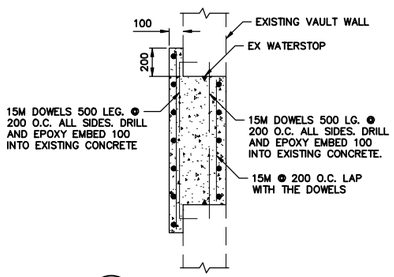
C SECTION
Scale 1:50



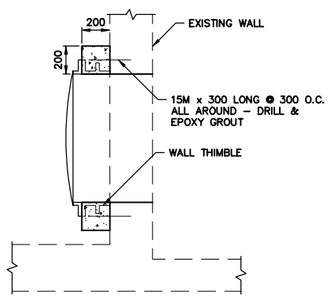
D SECTION
Scale 1:50



2 DETAIL
Scale 1:50



3 DETAIL – WALL CLOSURE
Scale 1:20



4 DETAIL – NEW FLAP GATE/WALL THIMBLE INSTALLATION
Scale 1:20

FOR INDEX SEE G-1001

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
1:20 — 0.0 500 1000 mm
1:25 — 0.0 500 1000 1500 mm
1:40 — 0.0 1000 2000 mm
1:50 — 0.0 1000 2000 3000 mm
1:250 — 0.0 5.0 10.0 15.0 m
1:500 — 0.0 10.0 20.0 30.0 m
1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.
ELEV. 232.525m

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED	MGM
SCALE: HORIZONTAL	1:50	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–	DATE	25/05/14

PLOT DATE: 2025 05 13

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
S-1002

Tender No: 1010-2024B
CONTRACT NUMBER:

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

EXISTING SIPHON CHAMBER MODIFICATIONS
SECTIONS & DETAILS

SHEET 20 OF 32
CITY DRAWING NUMBER
S-1002

FILE PATH: C:\Users\elpple\DC\ACCDocs\AECOM\60728226-Repic-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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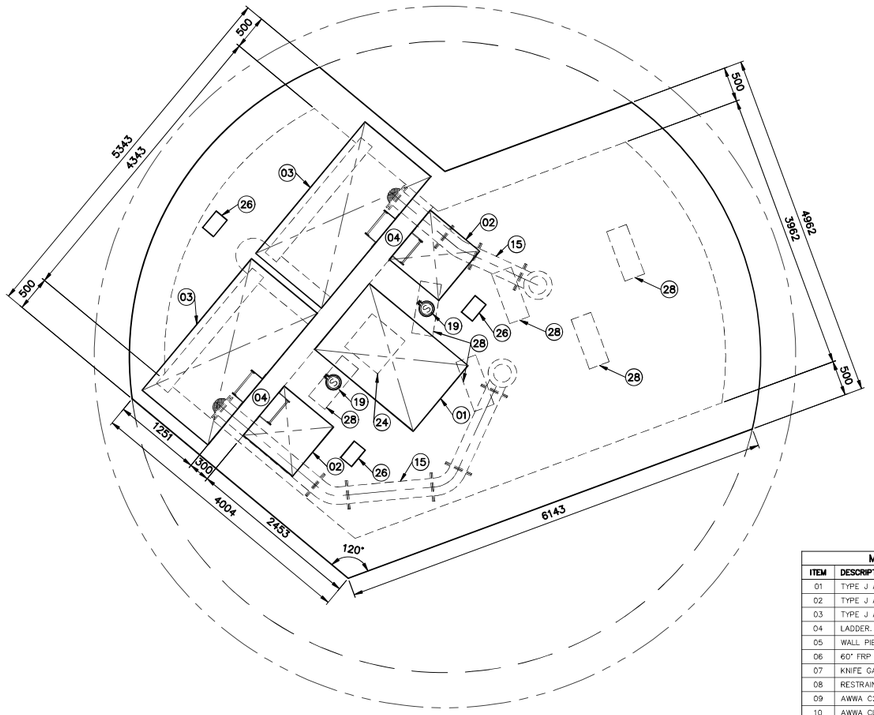
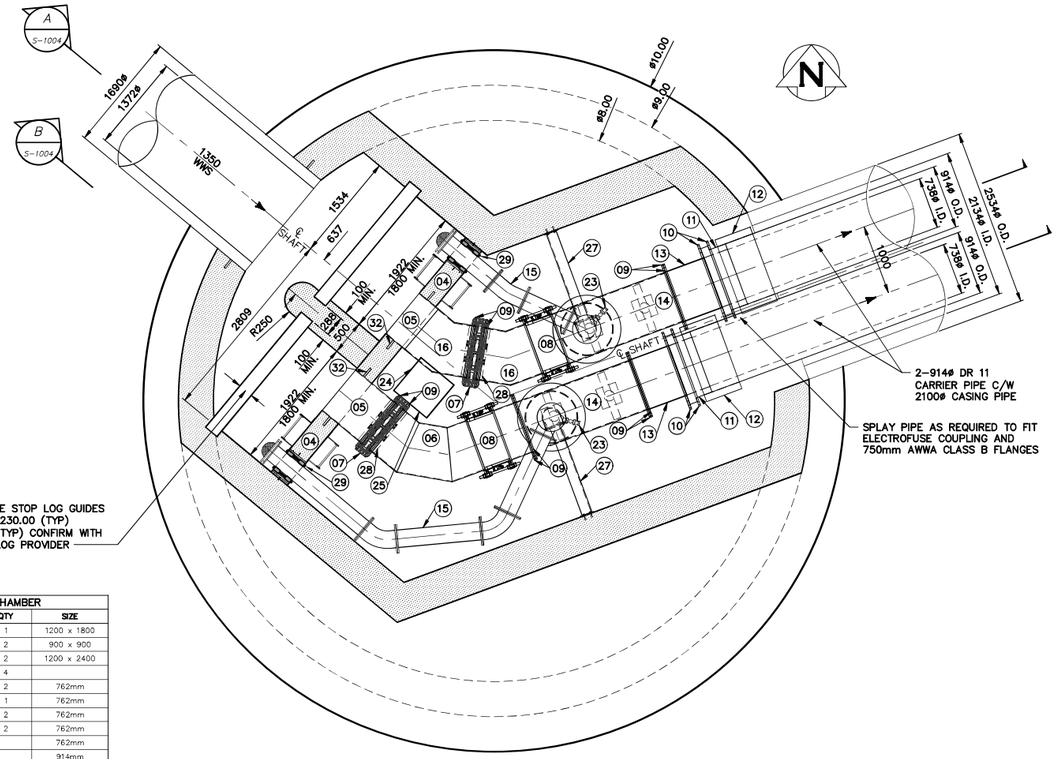


ROOF PLAN – EL 233.60

Scale 1:40



SILL PLAN – EL 225.156

Scale 1:40

MATERIAL LIST – UPSTREAM SIPHON CHAMBER

ITEM	DESCRIPTION	QTY	SIZE
01	TYPE J AL HATCH	1	1200 x 1800
02	TYPE J AL HATCH	2	900 x 900
03	TYPE J AL HATCH	2	1200 x 2400
04	LADDER. SEE DETAIL "1", DWG. S-4001	4	
05	WALL PIECE	2	762mm
06	60° FRP FABRICATED BEND	1	762mm
07	KNIFE GATE VALVE	2	762mm
08	RESTRAINED DISMANTLING JOINT	2	762mm
09	AWWA C207 CLASS B FLANGE		762mm
10	AWWA CLASS B FLANGE		914mm
11	STUB FLANGE	2	914mm
12	ELECTROFUSE COUPLING	2	914mm (I.D.)
13	9° FRP FABRICATED BEND	2	762mm
14	45° FRP WYE	2	762mm
15	VENT PIPE	2	250mm
16	30° FRP FABRICATED BEND	2	762mm
17	INSPECTION/CLEANING ACCESS DROP PIPES	2	250mm
18	45° FRP BEND	2	762mm
19	STANDARD CITY OF WINNIPEG VALVE BOX STAMPED "S" C/W VALVE BOX MOUNTED POSITION INDICATOR	2	
20	INTERMEDIATE FRP PLATFORM SEE DETAIL "2", DWG. S-4001		
21	250ø EXHAUST VENT ASSEMBLY SEE DETAIL "3" DWG. S-4001	2	
22	BLIND FLANGE C/W VENT OUTLET	2	762mm
23	LEAK TEST & DRAIN CONNECTION SEE DETAIL "4", DWG. S-4001	2	50mm
24	600x600x100 SUMP AND GRATING SEE DETAIL "5", DWG. S-4001	1	
25	FILL PORT	2	200mm
26	SAFETY LIFT DAVIT	3	
27	VERTICAL PIPE SUPPORT SEE DETAIL "6", DWG. S-4001	2	
28	VALVE BASE BLOCK. SEE DETAIL "7", DWG. S-4001	2	
29	WALL OPENING C/W LINK SEAL SEE DETAIL "8", DWG. S-4001	2	
30	OFFSET RISER CLAMP (MSS TYPE 4) FASTENED TO FRP SUPPORT STRUCTURE		
31	FRP SUPPORT SEE DETAIL "9", DWG. S-4001	2	
32	THRUST RING (AS PER MANUFACTURER DESIGN)		

FOR INDEX SEE G-1001

[redacted]

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0,0 100 200 300 mm
1:10 — 0,0 250 500 mm
1:20 — 0,0 500 1000 mm
1:25 — 0,0 500 1000 1500 mm
1:40 — 0,0 1000 2000 mm
1:50 — 0,0 1000 2000 3000 mm
1:250 — 0,0 5,0 10,0 15,0 m
1:500 — 0,0 10,0 20,0 30,0 m
1:750 — 0,0 25,0 50,0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:

LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:40	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
S-1003

Tender No: 1010-20248
CONTRACT NUMBER:

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

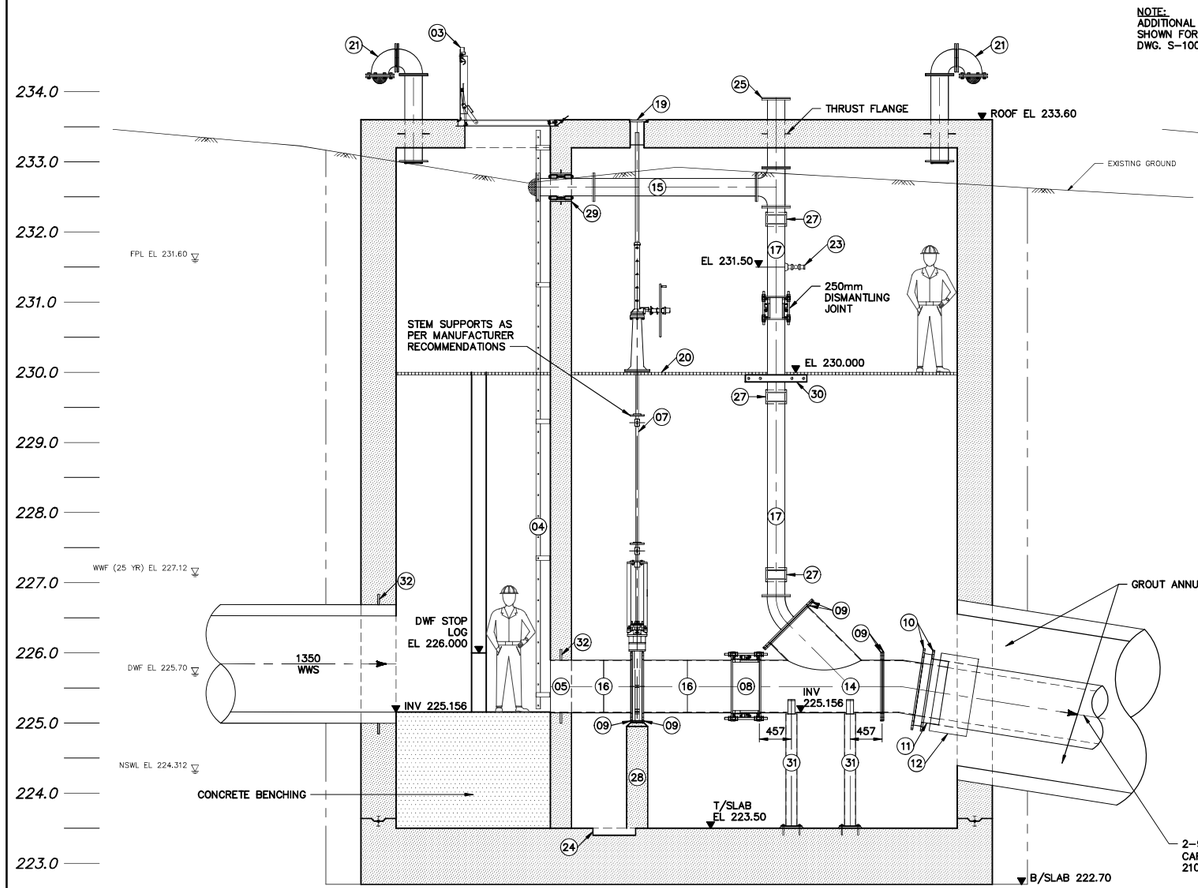
PROPOSED UPSTREAM SIPHON CHAMBER
PLANS & DETAILS

SHEET 21 OF 32

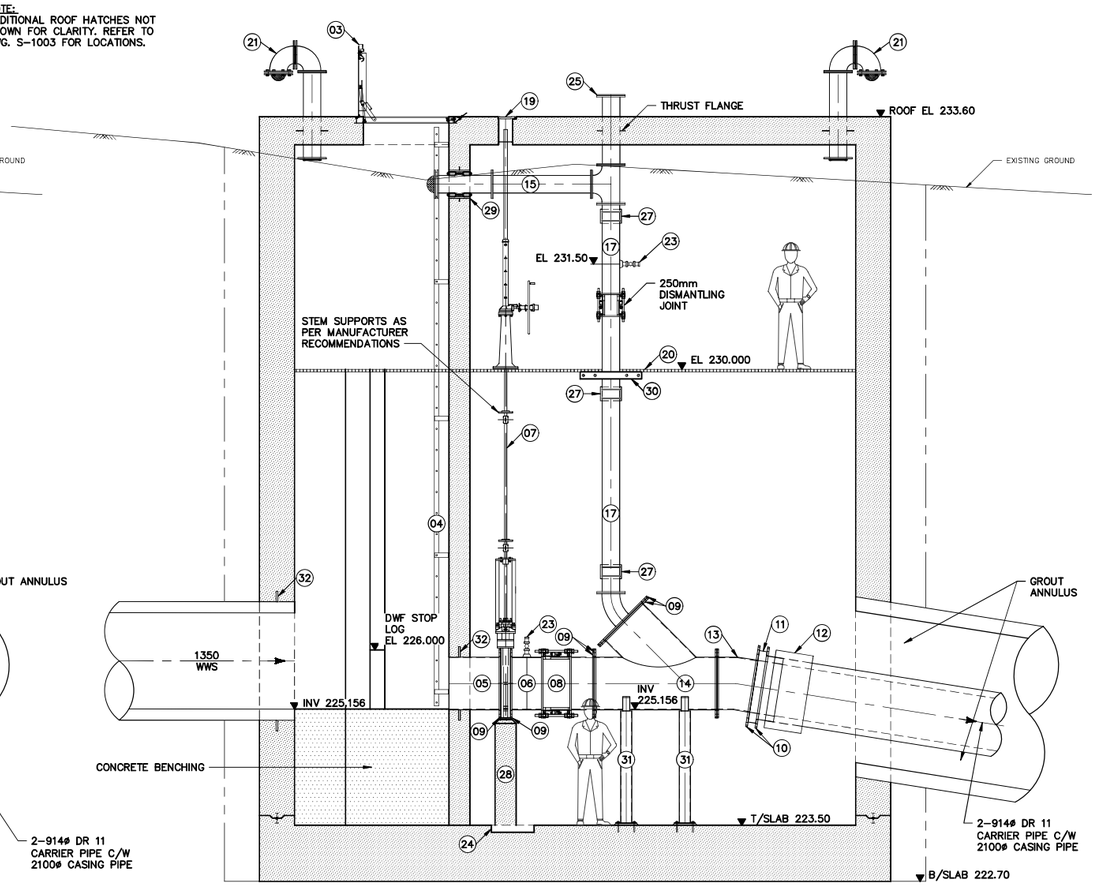
CITY DRAWING NUMBER
S-1003

FILE PATH: C:\Users\lepplo\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
FILE NAME: 60728226-SHT-00-S-1003_S-1006.dwg

NOTE:
ADDITIONAL ROOF HATCHES NOT SHOWN FOR CLARITY. REFER TO DWG. S-1003 FOR LOCATIONS.



A SECTION S-1003 Scale 1:40



B SECTION S-1003 Scale 1:40

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm 1:5
0.0 250 500 mm 1:10
0.0 500 1000 mm 1:20
0.0 500 1000 1500 mm 1:25
0.0 1000 2000 mm 1:40
0.0 1000 2000 3000 mm 1:50
0.0 5.0 10.0 15.0 m 1:250
0.0 10.0 20.0 30.0 m 1:500
0.0 25.0 50.0 m 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 ELEV. 232.525m Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:40	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
S-1004

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PROPOSED UPSTREAM SIPHON CHAMBER
SECTIONS & DETAILS

SHEET 22 OF 32
CITY DRAWING NUMBER
S-1004

FILE PATH: C:\Users\leippla\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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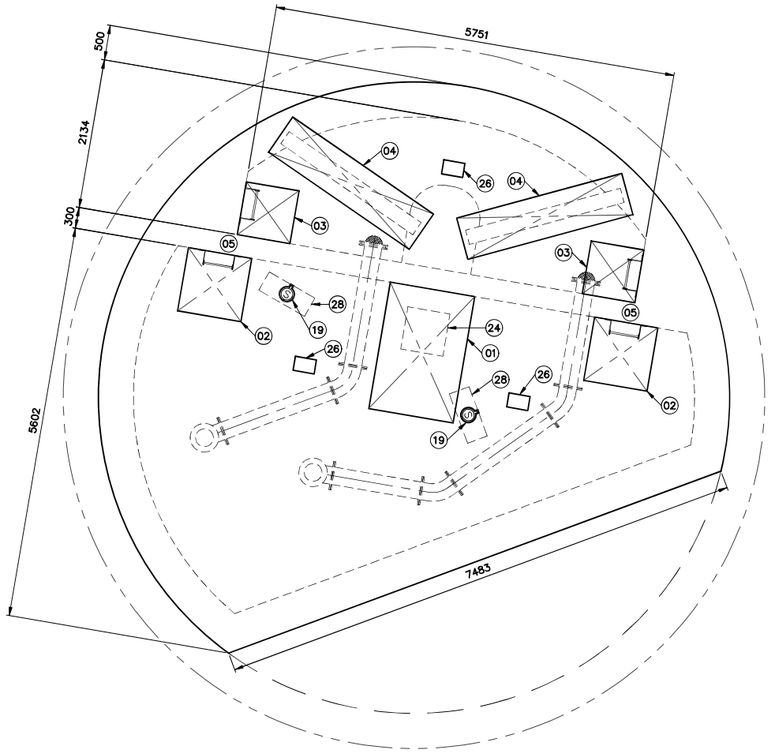
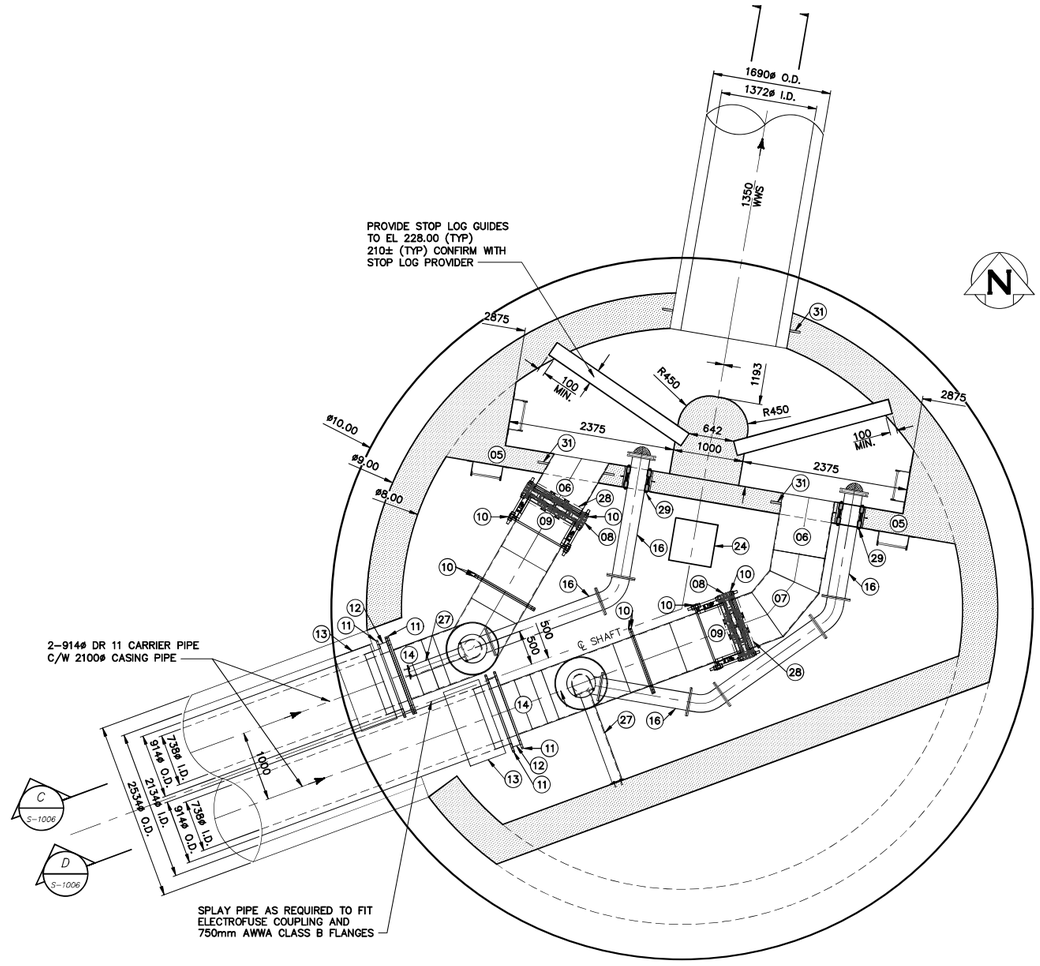


ROOF PLAN – EL 232.60

Scale 1:40



SILL PLAN – EL 218.900

Scale 1:40

MATERIAL LIST – DOWNSTREAM SIPHON CHAMBER			
ITEM	DESCRIPTION	QTY	SIZE
01	TYPE J AL HATCH	1	1200 x 1800
02	TYPE J AL HATCH	2	900 x 900
03	TYPE J AL HATCH	2	750 x 750
04	TYPE J AL HATCH	2	600 x 2400
05	LADDER, SEE DETAIL "1", DWG. S–4001	4	
06	WALL PIECE	2	762mm
07	60° FRP FABRICATED BEND	1	762mm
08	KNIFE GATE VALVE	2	762mm
09	RESTRAINED DISMANTLING JOINT	2	762mm
10	AWWA C207 CLASS B FLANGE		762mm
11	AWWA CLASS B FLANGE		914mm
12	STUB FLANGE	2	914mm
13	ELECTROFUSE COUPLING	2	914mm (I.D.)
14	81° FRP FABRICATED BEND	2	762mm
15	45° FRP WYE	2	762mm
16	VENT PIPE	2	250mm
17	INSPECTION/CLEANING ACCESS DROP PIPES	2	250mm
18	45° FRP BEND	2	762mm

MATERIAL LIST – DOWNSTREAM SIPHON CHAMBER			
ITEM	DESCRIPTION	QTY	SIZE
19	STANDARD CITY OF WINNIPEG VALVE BOX STAMPED "S" C/W VALVE BOX MOUNTED POSITION INDICATOR	2	
20	INTERMEDIATE FRP PLATFORM SEE DETAIL "2", DWG. S–4001		
21	250ø EXHAUST VENT ASSEMBLY SEE DETAIL "3" DWG. S–4001	2	
22	BLIND FLANGE C/W VENT OUTLET	2	762mm
23	LEAK TEST & DRAIN CONNECTION SEE DETAIL "4", DWG. S–4001	2	50mm
24	600x600x100 SUMP AND GRATING SEE DETAIL "5", DWG. S–4001	1	
25	FILL PORT	2	200mm
26	SAFETY LIFT DAVIT	3	
27	VERTICAL PIPE SUPPORT SEE DETAIL "6", DWG. S–4001	2	
28	VALVE BASE BLOCK, SEE DETAIL "7", DWG. S–4001	2	
29	WALL OPENING C/W LINK SEAL SEE DETAIL "8", DWG. S–4001	2	
30	OFFSET RISER CLAMP (MSS TYPE 4) FASTENED TO FRP SUPPORT STRUCTURE	2	
31	THRUST RING (AS PER MANUFACTURER DESIGN)		

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0, 100, 200, 300 mm
1:10 — 0.0, 250, 500 mm
1:20 — 0.0, 500, 1000 mm
1:25 — 0.0, 500, 1000, 1500 mm
1:40 — 0.0, 1000, 2000 mm
1:50 — 0.0, 1000, 2000, 3000 mm
1:250 — 0.0, 5.0, 10.0, 15.0 m
1:500 — 0.0, 10.0, 20.0, 30.0 m
1:750 — 0.0, 25.0, 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

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B.M. Z63–11
ELEV. 232.525m
Bishop Grandin Blvd. & the E. bank of the Red River, Tbit. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:40	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13
Tender No: 1010–20248
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
S–1005

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PROPOSED DOWNSTREAM SIPHON CHAMBER
PLANS & DETAILS

SHEET 23 OF 32
CITY DRAWING NUMBER
S–1005

FILE PATH: C:\Users\leippla\DC\ACCDocs\AECOM\60728226–Replc–of–FGSV–Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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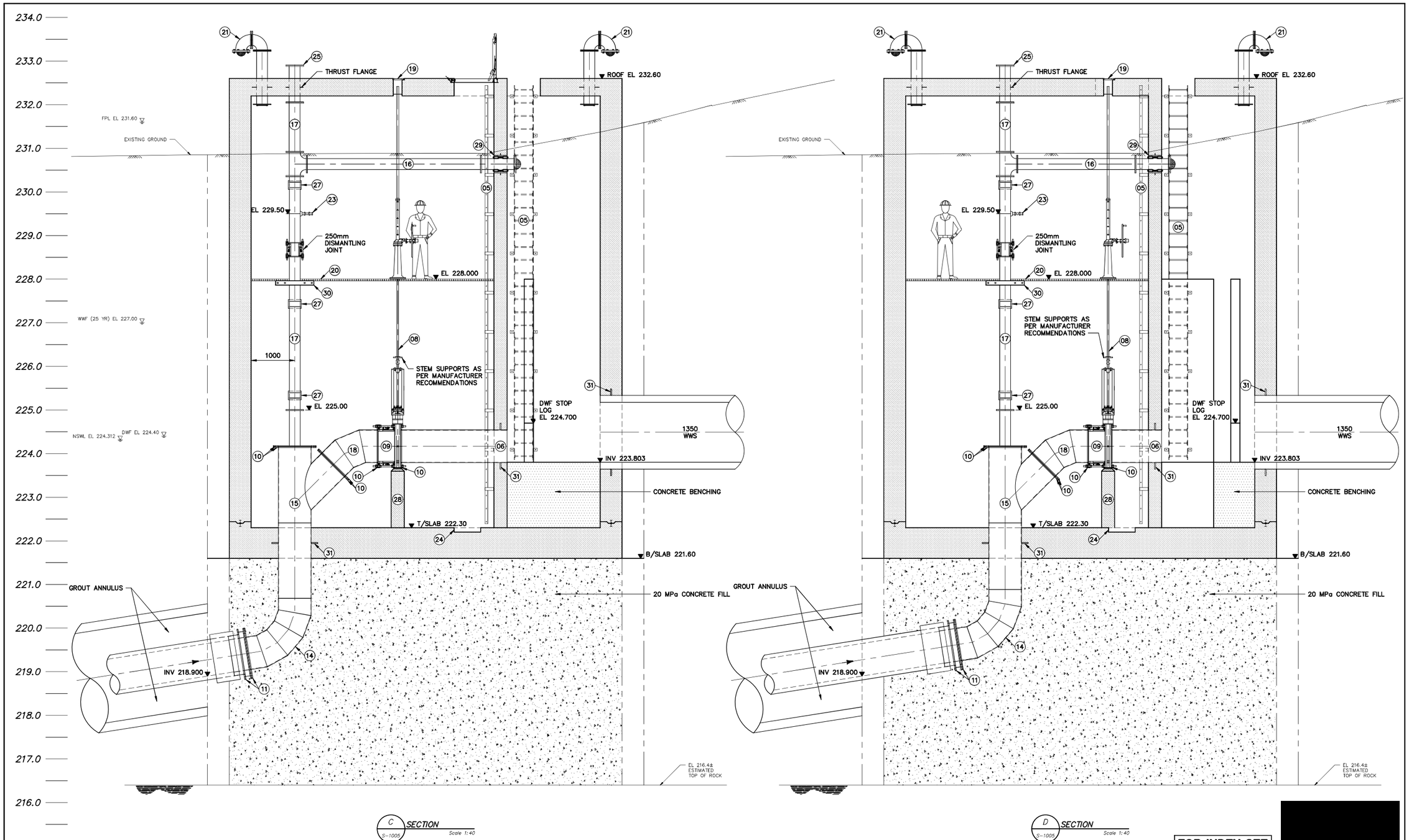

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
1:20 — 0.0 500 1000 mm
1:25 — 0.0 500 1000 1500 mm
1:40 — 0.0 1000 2000 mm
1:50 — 0.0 1000 2000 3000 mm
1:250 — 0.0 5.0 10.0 15.0 m
1:500 — 0.0 10.0 20.0 30.0 m
1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

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B.M. Z63-11 Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.
ELEV. 232.525m

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	1:40	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]

CONSULTANT DRAWING NUMBER
S-1006

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

PROPOSED DOWNSTREAM SIPHON CHAMBER
SECTIONS & DETAILS

SHEET 24 OF 32
CITY DRAWING NUMBER
S-1006

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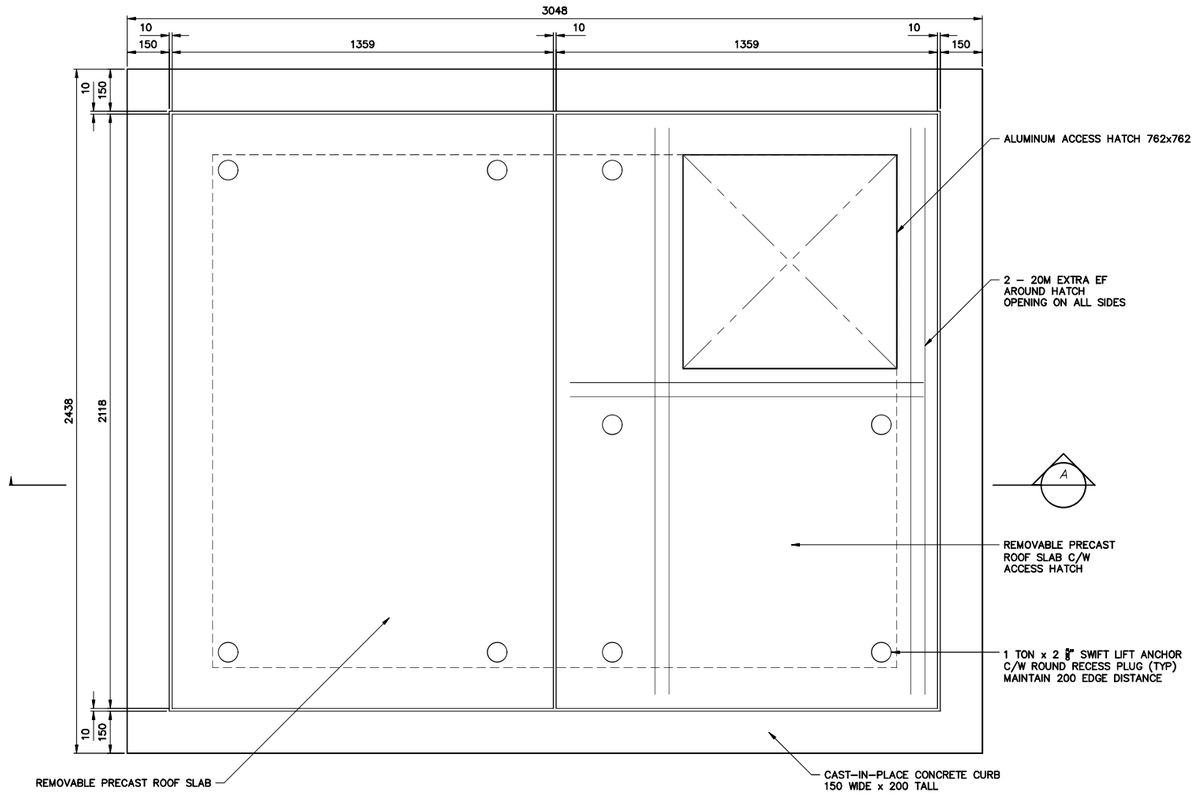
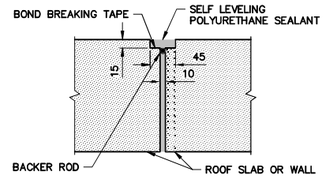
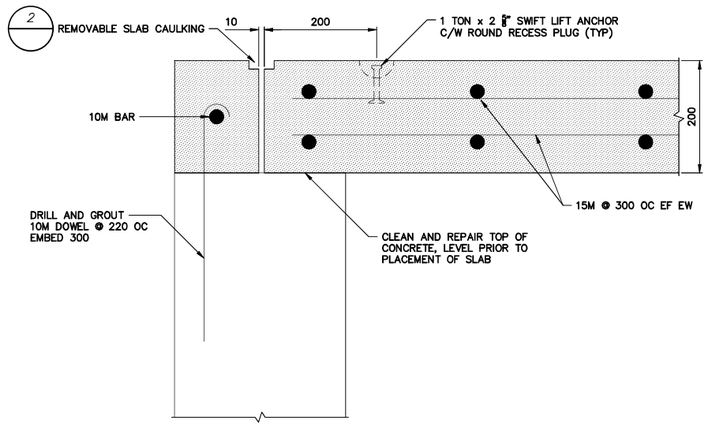


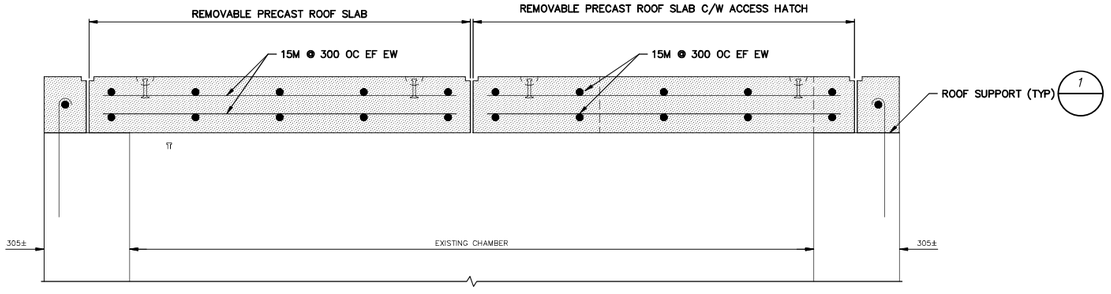
ROOF PLAN
Scale 1:10



2 DETAIL – REMOVABLE SLAB CAULKING
Scale 1:5



1 DETAIL – ROOF SUPPORT
Scale 1:5



A SECTION
Scale 1:10

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0 100 200 300 mm
1:10 — 0.0 250 500 mm
1:20 — 0.0 500 1000 mm
1:25 — 0.0 500 1000 1500 mm
1:40 — 0.0 1000 2000 mm
1:50 — 0.0 1000 2000 3000 mm
1:250 — 0.0 5.0 10.0 15.0 m
1:500 — 0.0 10.0 20.0 30.0 m
1:750 — 0.0 25.0 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 13	DATE	25/05/14

PLOT DATE: 2025 05 13
Tender No: 1010-20248
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
S-1007

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

WEST & SOUTH GATE CHAMBER
ROOF SLAB REPLACEMENT
SECTIONS & DETAILS

SHEET 25 OF 32
CITY DRAWING NUMBER
S-1007

FILE PATH: C:\Users\leippio\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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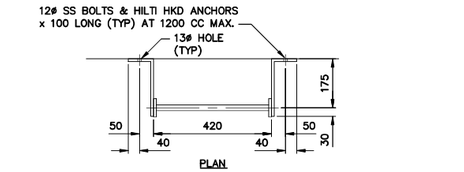
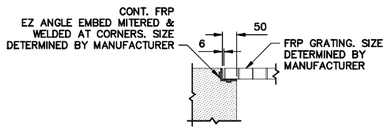
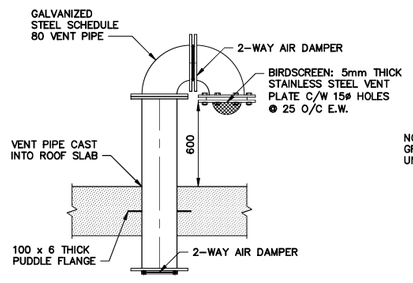


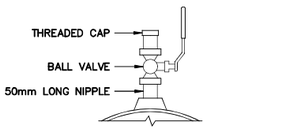
1 DETAIL – LADDER
S-1003, S-1004, S-1005, S-1006 — Scale 1:10



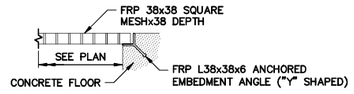
2 DETAIL – FRP GRATING
S-1004, S-1006 — Scale 1:10



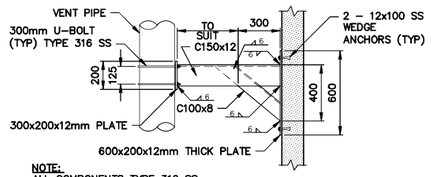
3 DETAIL – VENT PIPE
S-1004, S-1006 — Scale 1:20



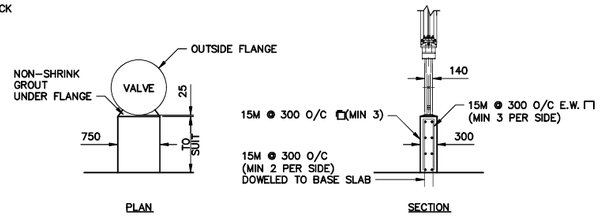
4 DETAIL – LEAK TEST AND DRAIN CONNECTION
S-1003, S-1004 — NTS



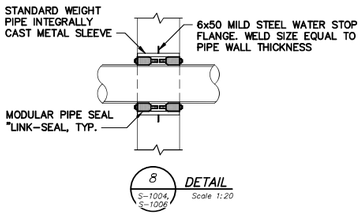
5 DETAIL – SUMP PIT GRATING
S-1004, S-1006 — Scale 1:10



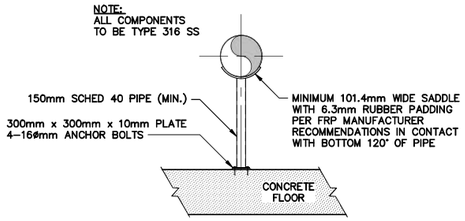
6 DETAIL – VERTICAL PIPE SUPPORT
S-1004, S-1006 — Scale 1:20



7 DETAIL – VALVE BASE BLOCK
S-1003, S-1004, S-1005, S-1006 — Scale 1:50



8 DETAIL
S-1004, S-1006 — Scale 1:20



9 DETAIL – 750mm FRP SUPPORT
Scale 1:50

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. Z63-11 ELEV. 232.525m — Bishop Grandin Blvd. & the E. bank of the Red River, Tblt. on top of N.W. Cor. of gate chamber which is closest to the most Sly. bridge of two bridges over Red River on Bishop Grandin Blvd.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	ADL

AECOM

DESIGNED BY	MPG	CHECKED BY	JAT
DRAWN BY	ADL	APPROVED BY	MGM
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–	DATE	25/05/14
DATE	2025 05 13		

PLOT DATE: 2025 05 13
Tender No: 1010-2024B
CONTRACT NUMBER:

ENGINEER'S SEAL

[redacted]

CONSULTANT DRAWING NUMBER
S-4001

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARRY ST VITAL SIPHON

STRUCTURAL
REINFORCING &
MISCELLANEOUS DETAILS

SHEET 26 OF 32
CITY DRAWING NUMBER
S-4001

FILE PATH: C:\Users\leippla\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
FILE NAME: 60728226-SHT-00-S-1003_S-1006.dwg

GENERAL NOTES:

GENERAL

1. ALL WORK SHALL MEET OR EXCEED MINIMUM REQUIREMENTS OF THE NATIONAL BUILDING CODE OF CANADA 2020. ASSOCIATED STANDARDS REFERENCED IN THAT CODE, AND LOCAL STANDARDS AND BYLAWS AS APPLICABLE.
2. READ THE STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE SPECIFICATIONS AND ALL OTHER PERTINENT CONTRACT DOCUMENTS. ENSURE THAT RELEVANT STATUTORY PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCING SITE WORKS.
3. ALL DIMENSIONS ARE IN METRIC UNITS UNLESS NOTED. VERIFY DIMENSIONS PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING. DO NOT SCALE DRAWINGS.
4. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PROCESS DRAWINGS FOR LOCATION OF RECESSES, INSERTS, SLEEVES, ETC. WHICH MUST BE CAST OR FORMED IN THE CAST-IN-PLACE CONCRETE.
5. REFER TO ALL OTHER RELEVANT DRAWINGS (E.G., ARCHITECTURAL, MECHANICAL AND ELECTRICAL) FOR LOCATIONS AND DIMENSIONS OF EQUIPMENT BASE, PITS, DEPRESSIONS, OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS. REPORT DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK.
6. CONTRACTOR TO CONFIRM DIMENSIONS AND ALL OTHER CRITICAL DETAILS WITH EQUIPMENT SUPPLIERS PRIOR TO CONSTRUCTION. REPORT DISCREPANCIES AND OBTAIN APPROVAL PRIOR TO PROCEEDING WITH CONSTRUCTION.
7. DO NOT RELY ON ACCURACY OF ANY AS-BUILT RECORDS PROVIDED. SURVEY AND VERIFY ACTUAL DIMENSIONS AND LAYOUT.
8. NOTIFY THE STRUCTURAL ENGINEER OF RECORD 48 HOURS IN ADVANCE FOR SITE REVIEW OF STRUCTURAL WORK.
9. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING, BRACING, AND SHORING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, ADEQUACY, AND INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
10. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO THE APPROVAL OF THE CONSULTANT.
11. ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE, AND ERECTION IN ACCORDANCE WITH THE SUPPLIER'S INSTRUCTIONS AND REQUIREMENTS.
12. LOADING APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. DESIGN LOADS ARE INDICATED WITHIN THESE NOTES. DO NOT APPLY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED AND TEMPORARY BRACING IS IN PLACE.
13. SUBMITTALS:
    1. SUBMIT THE FOLLOWING SHOP DRAWINGS, SEALED BY A QUAUIRED PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA, PRIOR TO FABRICATION:
       A) SHORING
       B) CONCRETE MIX DESIGNS
       C) PRECAST CONCRETE
       D) CONCRETE REINFORCING
    2. FULLY DETAIL SHOP DRAWINGS SHOWING ALL INFORMATION NECESSARY FOR FABRICATION AND INSTALLATION IN ACCORDANCE WITH INDUSTRY STANDARDS. ALL SHOP DRAWING SUBMITTALS TO BE IN METRIC UNITS INCLUDING DIMENSIONS, REINFORCING, BOLTS, AND STRUCTURAL STEEL SIZES.
    3. IMPROPERLY PREPARED SHOP DRAWINGS ARE SUBJECT TO REJECTION AND, ON THAT BASIS, ARE TO BE WITHDRAWN AND RESUBMITTED.
    4. DO NOT COMMENCE FABRICATION UNTIL REVIEWED SUBMITTAL HAS BEEN RETURNED. REVIEW OF SUBMITTALS DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS.
14. REPORT TO THE CONSULTANT ALL WORKS THAT DO NOT COMPLY WITH THE PROJECT REQUIREMENTS AND SUBMIT REMEDIAL WORKS PROPOSAL FOR COMMENT / AGREEMENT. DEFECTIVE WORK AND SUBSTANDARD MATERIALS SHALL BE RECTIFIED SATISFACTORILY OR REMOVED FROM SITE.
15. SUBMIT METHOD STATEMENTS TO CONSULTANTS WHEN REQUESTED FOR INFORMATION / COMMENT / AGREEMENT:
    - CONTRACTOR'S QUALITY / INSPECTION PROCEDURES
    - CONCRETE REPAIR PROCEDURES
    - HOT / COLD WEATHER CONCRETING PROCEDURE

DESIGN CRITERIA

1. DESIGN STANDARDS:
   GENERAL: NATIONAL BUILDING CODE OF CANADA, 2020
   CONCRETE: CSA STANDARDS A23.1, A23.2 AND A23.3
   STRUCTURAL STEEL: CSA STANDARD S16
   FOUNDATIONS: GEOTECHNICAL INVESTIGATION AND REPORT BY: GEOTECH DATA REPORT DATED APRIL 11, 2025.
2. DESIGN LOADS:
   IMPORTANCE CATEGORY: POST DISASTER

   DEAD LOADS: SELF WEIGHT
   ADDITIONAL LOADS: REFER TO PLANS
   LIVE LOADS: REFER TO PLANS
   SNOW LOADS: IMPORTANCE FACTORS: Is = 1.25 (ULS), 0.9 (SLS)
   GROUND SNOW LOAD: Ss = 1.9
   ASSOCIATED RAIN LOAD: Sr = 0.2
   SNOW LOAD FACTORS Cb, Cw, Cs, Ca, AND DRIFT LOADS IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 2020.

SHORING

1. PROVIDE SHORING AS INDICATED ON THE DRAWINGS AND WHERE REQUIRED TO MEET OCCUPATION HEALTH AND SAFETY REQUIREMENTS.
2. REFER TO CONTRACT SPECIFICATIONS.
3. SHORING SHALL BE DESIGNED BY AND BEAR THE SEAL OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SUBMIT TO CONSULTANT FOR REVIEW.
4. REMOVE THE TOP OF SHORING TO A MINIMUM DEPTH OF 1.5 m BELOW FINISHED GRADE AFTER COMPLETION OF FOUNDATION WALL BACKFILLING UNLESS OTHERWISE STATED IN CONTRACT SPECIFICATIONS.

EXCAVATION AND BACKFILL

1. REFER TO SPECIFICATION SECTION E16 - EXCAVATION AND BACKFILL.
2. ENSURE THAT THE INTEGRITY OF EXISTING UNDERGROUND SERVICES / STRUCTURES ARE MAINTAINED AT ALL TIMES DURING THE WORK. REPAIR / RECTIFY IMMEDIATELY ANY DAMAGE / DISRUPTION TO THE CLIENT'S SATISFACTION AND AT THE CONTRACTOR'S OWN COST.
3. EXCAVATIONS SHALL BE IN ACCORDANCE WITH APPLICABLE OCCUPATIONAL HEALTH AND SAFETY REGULATIONS.
4. THE CONTRACTOR SHALL THAT MAINTAIN A DRY EXCAVATION DURING THE ENTIRE PERIOD OF CONSTRUCTION.
5. BACKFILL MATERIALS AS SHOWN ON DRAWINGS.
6. TO AVOID DIFFERENTIAL LATERAL PRESSURES, BACKFILL SHALL BE BROUGHT UP EVENLY AROUND THE WALLS. ONLY HAND OPERATED COMPACTION SHOULD BE EMPLOYED WITHIN 600 mm OF THE CONCRETE WALLS.
7. BACKFILLING SHALL NOT BE COMPLETED UNTIL THE MAIN FLOOR SLAB HAS ACHIEVED 70% OF THE DESIGN COMPRESSIVE STRENGTH.
8. DO NOT PLACE BACKFILL ON FROZEN GROUND OR WATER LOGGED GROUND, NOR USE FROZEN MATERIAL.
9. MAINTAIN TO WITHIN +/- 1% OPTIMUM MOISTURE CONTENT TO PERMIT COMPACTION TO ATTAIN SPECIFIED DENSITIES. PROTECT BACKFILLED GRADE DURING AND AFTER COMPLETION OF BACKFILL OPERATION FROM SOFTENING DUE TO EXCESS MOISTURE.
10. FENCE OFF OR MAKE INACCESSIBLE ALL EXCAVATIONS IF LEFT UNATTENDED.

RAFT FOUNDATIONS

1. RAFT FOUNDATION SLABS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT.
2. THE RAFT FOUNDATION SHALL BE FOUNDED ON UNDISTURBED, COMPETENT, NATURALLY DEPOSITED GLACIAL TILL THAT IS ADEQUATELY PROTECTED FROM FREEZING, WETTING, SOFTENING AND DISTURBANCE. THE BEARING SOIL SHOULD BE INSPECTED AND APPROVED BY QUALIFIED GEOTECHNICAL PERSONNEL.
3. TO PRESERVE SOIL DENSITY AND TO MINIMIZE DISTURBANCE TO THE FOUNDING SOILS, PLACE MINIMUM 100 mm THICK LEAN MIX CONCRETE SLABS BELOW THE RAFT SLABS.
4. DISTURBED FOUNDATION SOILS, AND SOILS EXPOSED TO FREEZING OR WETTING SHALL BE REMOVED AND REPLACED WITH LEAN MIX CONCRETE FILL.
5. PROTECT THE PREPARED FOUNDATION SOILS AND MUD SLAB FROM FREEZING PRIOR TO, DURING AND AFTER CONSTRUCTION OF THE RAFT SLABS.
6. RAFT SLABS HAVE BEEN DESIGNED FOR THE FOLLOWING LIMIT STATES DESIGN PARAMETERS:

DOWNSTREAM (EAST) SIPHON CHAMBER:
GEOTECHNICAL RESISTANCE FACTOR: 0.5
FACTORED BEARING RESISTANCE: 500 kPa
SERVICEABILITY LIMIT PRESSURE: N/A
UPLIFT PRESSURE DUE TO BUOYANCY 102.9 kPa

UPSTREAM (WEST) SIPHON CHAMBER:
GEOTECHNICAL RESISTANCE FACTOR: 0.5
FACTORED BEARING RESISTANCE: 190 kPa
SERVICEABILITY LIMIT PRESSURE: 170 kPa
UPLIFT PRESSURE DUE TO BUOYANCY 34.3 kPa

DISCHARGE CHAMBER:
GEOTECHNICAL RESISTANCE FACTOR: 0.5
FACTORED BEARING RESISTANCE: 159 kPa
SERVICEABILITY LIMIT PRESSURE: 150 kPa
UPLIFT PRESSURE DUE TO BUOYANCY 14.1 kPa

FOUNDATION WALLS

1. FOUNDATION WALLS HAVE BEEN DESIGNED FOR LATERAL EARTH PRESSURES DETERMINED IN ACCORDANCE WITH THE FOLLOWING:
   $P = K(\gamma H + q)$ WHERE: K = 0.71, γ = 18 kN / m3, q = 12 kPa
2. BACKFILL MATERIALS AS SHOWN ON DRAWINGS.
3. TO AVOID DIFFERENTIAL LATERAL PRESSURES, BACKFILL SHALL BE BROUGHT UP EVENLY AROUND THE WALLS. ONLY HAND OPERATED COMPACTION SHOULD BE EMPLOYED WITHIN 600 mm OF THE FOUNDATION WALLS.
4. BACKFILL WITHIN 600 mm OF THE FOUNDATION WALLS SHALL BE COMPACTED TO 95 PERCENT OF THE SPMDD (STANDARD PROCTOR MAXIMUM DRY DENSITY). THIS MATERIAL SHALL NOT BE OVER-COMPACTED.
5. BACKFILLING SHALL NOT BE COMPLETED UNTIL THE FLOOR SLAB AND STRUCTURE ARE COMPLETE AND HAVE ACHIEVED 70% OF THE DESIGN COMPRESSIVE STRENGTH.

CONCRETE REINFORCING

1. REFER TO SPECIFICATION SECTIONE24 - REINFORCING STEEL.
2. REINFORCING WORK SHALL BE IN ACCORDANCE WITH CSA A23.1, ACI 315, AND THE RSIC REINFORCING STEEL MANUAL OF STANDARD PRACTICE.
3. ALL REINFORCING TO BE CONTINUOUS. SPLICE ONLY AS DETAILED OR APPROVED BY THE CONSULTANT. UNLESS DETAILED OTHERWISE, ALL LAP SPLICES SHALL BE CLASS B TENSION SPLICES.
4. WHERE NOT SPECIFICALLY DETAILED, REINFORCING STEEL SHALL BE PROTECTED BY CONCRETE COVER AS FOLLOWS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 75mm
   OTHERWISE: 60mm
5. MATERIALS SHALL CONFORM TO THE FOLLOWING:
   REINFORCING STEEL: FINISH, DEFORMED BARS — CSA G30.18, GRADE 400, PLAIN
   WELDABLE REINFORCING STEEL: — CSA G30.18, GRADE 400W, PLAIN FINISH, DEFORMED BARS
6. SUBMIT REINFORCING STEEL SHOP DRAWINGS TO THE CONSULTANT FOR REVIEW PRIOR TO FABRICATION.
7. CHAIR SLAB REINFORCING NOT FURTHER THAN 1000mm IN EITHER DIRECTION, SUPPLY SUPPORT BARS, CHAIRS, AND CARRIERS AS NECESSARY.
8. DOWELS AND ANCHOR BOLTS SHALL BE SECURED IN POSITION BY MEANS OF TEMPLATES BEFORE CONCRETE IS POURED. WHERE DOWELS OR ANCHOR BOLTS ARE TO BE EXPOSED FOR LONGER THAN 1 MONTH AFTER INSTALLATION, PROVIDE WRAPPING AND COVERING AS PROTECTION.
9. 90° HOOKS AND 180° HOOKS WHERE SHOWN SHALL BE DETAILED AS STANDARD HOOKS UNLESS NOTED OTHERWISE.
10. REPLACE BARS THAT DEVELOPED SPLITS OR CRACKS.
11. REINFORCING SHOWN ON STRUCTURAL DETAILS ARE SCHEMATIC ONLY AND MAY NOT SHOW THE ACTUAL NUMBER OF REBARS.

CONCRETE ACCESSORIES

1. APPLY APPROVED NON-METALLIC HARDENER OR SEALER TO AREAS SHOWN ON ARCHITECTURAL FLOOR FINISH SCHEDULE. HARDENER AND SEALER SHALL BE FROM SAME MANUFACTURER (TARGET, GRACE, STERNSON, MASTER BUILDERS OR DIAMEG). HARDENER AGGREGATE SHALL BE APPLIED IN TWO SHAKES TO 4.0 KG/SQ M. TO MANUFACTURERS RECOMMENDATIONS.
2. GROUT: NON-SHRINK, NON-METALLIC GROUT WITH MINIMUM STRENGTH AT THREE DAYS OF 20 MPA AND MINIMUM STRENGTH AT 28 DAYS OF 40 MPA. EPOXY GROUT SHALL BE USED FOR VIBRATING EQUIPMENT BASE WHERE SPECIFIED. APPLY GROUT STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. BONDING AGENTS: THREE COMPONENT, WATER BASED, EPOXY RESIN / CEMENT BONDING AGENT
4. ASPHALTIC FIBREBOARD: ASPHALT SATURATED FIBRE BOARD CONFIRMING TO ASTM D1751.
5. STEEL BAR SUPPORT/CHAIRS: GALVANIZED/STAINLESS STEEL OR PLASTIC. DO NOT USE ROCK, BRICKS OR CONCRETE FRAGMENTS.
6. INSULATION: RIGID STYROFOAM HI-40 BY DOW OR APPROVED EQUIVALENT.
7. CURING COMPOUNDS SHALL NOT BE USED OVER CONCRETE SURFACE DESIGNATED TO RECEIVE PROTECTION COATING OR PAINTED FINISH.

CAST-IN-PLACE CONCRETE

1. REFER TO SPECIFICATION SECTIONS E23 - CAST-IN-PLACE CONCRETE, E25 - CONCRETE PROTECTIVE LINERS.
2. CAST-IN-PLACE CONCRETE WORK SHALL BE IN ACCORDANCE WITH CSA A23.1.
3. MATERIALS SHALL CONFORM TO THE FOLLOWING:
   CEMENT: CSA A3001
   WATER: CSA A23.1/A23.2
   AGGREGATES: CSA A23.1/A23.2
   ADMIXTURES: AIR ENTRAINING ADMIXTURE TO ASTM C260
   CHEMICAL ADMIXTURES TO ASTM C494
   WATERPROOFING ADMIXTURE: SPG VAPOR LOCK 20/21
   GROUT: PREMIXED, NON-SHRINK, NON-METALLIC GROUT WITH MINIMUM STRENGTH AT 4 DAYS OF 20 MPa, AND AT 28 DAYS OF 40 MPa
4. SUPPLEMENTARY CEMENTING MATERIALS WITH A MAXIMUM OF 20 PERCENT TYPE F FLY ASH REPLACEMENT BY MASS OF TOTAL CEMENTITIOUS MATERIALS, IN ACCORDANCE WITH CSA A3001, IS PERMITTED.
5. THE USE OF ACCELERATING OR SET RETARDING ADMIXTURES DURING HOT AND COLD WEATHER SHALL BE APPROVED BY THE CONSULTANT. ADMIXTURES CONTAINING CALCIUM CHLORIDE ARE NOT PERMITTED.
6. CONCRETE MIXES SHALL BE DESIGNED TO MEET THE FOLLOWING PERFORMANCE CRITERIA IN ACCORDANCE WITH CSA A23.1 TABLE 5, ALTERNATIVE 1:

TYPE	CSA EXPOSURE CLASS	CEMENT TYPE	MINIMUM COMPRESSIVE STRENGTH (MPa)	MAX W/C RATIO	MAX AGGREGATE SIZE (mm)	AIR CONTENT RANGE (%)	WATERPROOFING ADMIX	LOCATION
A	S-1	HS/HSb	35 AT 28 DAYS	0.4	20	5-8	NO	DISCHARGE ROOF SLAB, WALLS, RAFT SLAB. DOWNSTREAM SIPHON CHAMBER ROOF SLAB, WALLS, RAFT SLAB. UPSTREAM SIPHON CHAMBER ROOF SLAB, WALLS, RAFT SLAB.
B	–	GUL	1.5-2.5 AT 28 DAYS	–	5	~ 20	–	IF APPLICABLE, FLOWABLE CEMENT STABILIZED FILL AROUND CHAMBERS

7. CONCRETE FOR ROOF SLABS AND BEAMS SHALL HAVE NO ARTIFICIALLY ENTRAINED AIR.
8. WATERPROOFING ADMIX SHALL BE ADDED TO CONCRETE MIX TYPE A AT THE TIME OF BATCHING IN ACCORDANCE WITH THE MANUFACTURES INSTRUCTIONS.
9. SUBMIT CONCRETE MIX DESIGNS TO THE CONSULTANT FOR REVIEW PRIOR TO COMMENCEMENT OF WORK.
10. ENSURE REINFORCEMENT AND INSERTS ARE NOT DISTURBED DURING CONCRETE PLACEMENT. DO NOT PLACE CONCRETE AGAINST FROZEN GROUND OR IN STANDING WATER.
11. CONCRETE TO BE BATCHED AND COMPLETELY DISCHARGED IN A PERIOD NOT EXCEEDING NINETY (90) MINUTES FROM THE TIME OF INITIAL ADDITION OF WATER TO THE CEMENT AND AGGREGATE.
12. HORIZONTAL CONSTRUCTION JOINTS IN FOUNDATION WALLS ARE NOT PERMITTED UNLESS AUTHORIZED OR SPECIFIED BY THE CONSULTANTS.
13. USE 25 x 25 FORMED CHAMFERS ON EXPOSED CORNERS OF BEAMS, COLUMNS AND WALLS U.N.O.
14. MAINTAIN ACCURATE RECORDS OF POURED CONCRETE ITEMS TO INDICATE DATE, LOCATION OF POUR, AIR TEMPERATURE, AND TEST SAMPLES TAKEN. SUBMIT RECORDS TO ENGINEER UPON REQUEST.
15. PROTECT CONCRETE FROM PREMATURE DRYING. CURE CONCRETE IN ACCORDANCE WITH CSA-A23.1. PROVIDE ADDITIONAL CURING MEASURES OR PROTECTION DURING HOT OR COLD WEATHER IN ACCORDANCE WITH CSA-A23.1.
16. DO NOT PLACE CONCRETE WHEN WEATHER IS NOT SUITABLE (E.G. DURING RAIN, SNOW) UNLESS ADEQUATE PRECAUTIONARY MEASURES ARE IN PLACE.
17. FILL TIE HOLES IN ACCORDANCE WITH CSA-A23.1.
18. REPAIR HONEYCOMBED AND DEFECTIVE CONCRETE AT CONTRACTOR'S OWN COST. PROPOSED METHOD STATEMENT AND MATERIAL FOR REPAIR SHALL BE SUBMITTED TO THE CONSULTANT FOR APPROVAL.

CONCRETE TESTING

1. INSPECTION AND TESTING OF CONCRETE MATERIALS WILL BE CARRIED OUT BY AN INDEPENDENT TESTING LABORATORY DESIGNATED AND PAID FOR BY THE OWNER, IN ACCORDANCE WITH CSA-A23.2.
2. A STRENGTH TEST WILL CONSIST OF THREE (3) STANDARD CYLINDERS; ONE TESTED AT SEVEN (7) DAYS, AND TWO TESTED AT TWENTY-EIGHT (28) DAYS.
3. A STRENGTH TEST FOR CONCRETE WITH 56-DAY STRENGTH SPECIFIED WILL CONSIST OF FOUR CYLINDERS; ONE TESTED AT SEVEN (7) DAYS, ONE TESTED AT TWENTY-EIGHT (28) DAYS, AND TWO TESTED AT FIFTY-SIX (56) DAYS.
4. FREQUENCY OF CONCRETE TESTING WILL BE ONE SET OF CYLINDERS FOR EVERY 50 CUBIC METERS OR PART THEREOF OF EACH CONCRETE MIX POURED IN A DAY. THIS FREQUENCY MAY BE INCREASED OR DECREASED AT THE ENGINEER'S DISCRETION.
5. TEST SLUMP AND AIR CONTENT EACH TIME CYLINDER SAMPLES ARE TAKEN. FOR CLASS F-1, C-X6, C-1 AND C-2 CONCRETE, EVERY LOAD OR BATCH OF CONCRETE SHALL BE TESTED FOR AIR CONTENT.
6. THE TESTING LABORATORY WILL TAKE ADDITIONAL CYLINDERS DURING COLD WEATHER CONCRETING. CURE CYLINDERS ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE WHICH THEY REPRESENT.
7. CONTRACTOR SHALL PROVIDE ACCESS TO ALL WORK BEING INSPECTED/TESTED.
8. NON-DESTRUCTIVE METHODS OF TESTING CONCRETE SHALL BE IN ACCORDANCE WITH CSA-A23.2.
9. INSPECTION OR TESTING BY TESTING LABORATORY WILL NOT AUGMENT OR REPLACE CONTRACTOR QUALITY CONTROL NOR RELIEVE HIM OF HIS CONTRACTUAL RESPONSIBILITY.
10. CONCRETE FAILING TO MEET THE SPECIFIED REQUIREMENTS SHALL BE RETESTED, STRENGTHENED, OR REJECTED IN ACCORDANCE WITH THE CSA-A23.2. ALL ADDITIONAL TESTING, STRENGTHENING, AND/OR REPLACEMENT SHALL BE AT THE CONTRACTOR'S EXPENSE.

FOR INDEX SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

1:5 — 0.0, 100, 200, 300 mm
1:10 — 0.0, 250, 500 mm
1:20 — 0.0, 500, 1000 mm
1:25 — 0.0, 500, 1000, 1500 mm
1:40 — 0.0, 1000, 2000 mm
1:50 — 0.0, 1000, 2000, 3000 mm
1:250 — 0.0, 5.0, 10.0, 15.0 m
1:500 — 0.0, 10.0, 20.0, 30.0 m
1:750 — 0.0, 25.0, 50.0 m

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. xxxxxx
ELEV. xxx.xxxm
CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	MRK

AECOM

DESIGNED BY KB | CHECKED BY CK
DRAWN BY MRK | APPROVED BY MB
SCALE: HORIZONTAL AS NOTED, VERTICAL – | RELEASED FOR CONSTRUCTION R. LUCKY
DATE 2025 05 14 | DATE
PLOT DATE: 2025 05 14
Tender No: 1010-2024A
CONTRACT NUMBER:

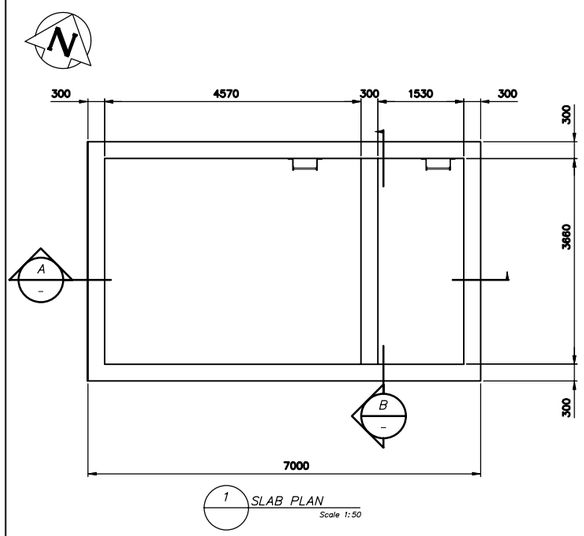
ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
S-2001

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

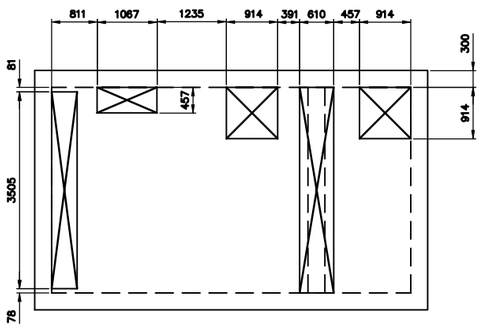
REPLACEMENT OF THE FORT GARY ST VITAL SIPHON
DISCHARGE MANHOLE
STRUCTURAL GENERAL NOTES

SHEET 27 OF 32
CITY DRAWING NUMBER
S-2001

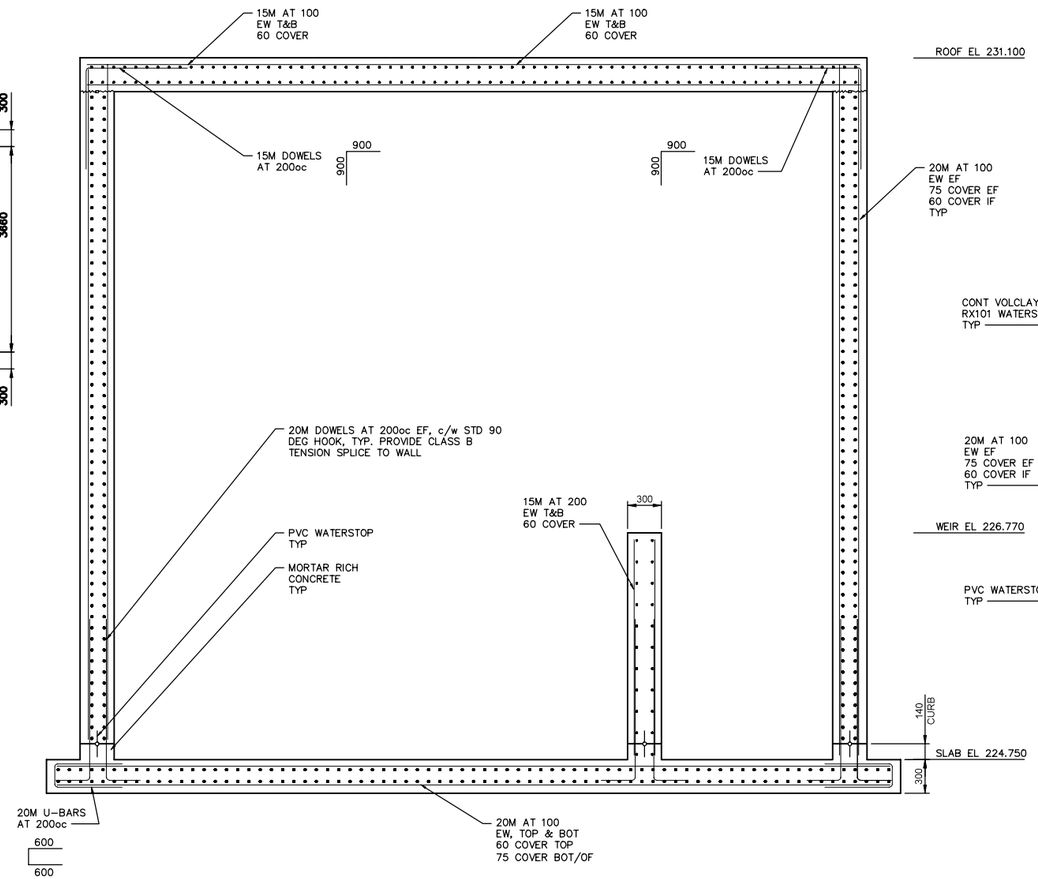
FILE PATH: C:\Users\mark.kalanack\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
FILE NAME: 60728226-SHT-00-S-1003_S-2001.dwg



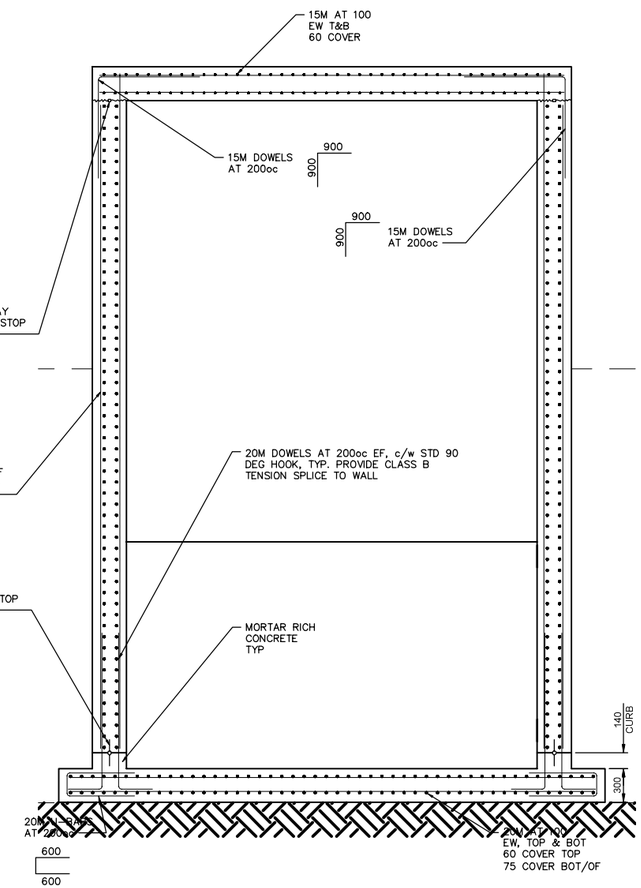
1 SLAB PLAN
Scale 1:50



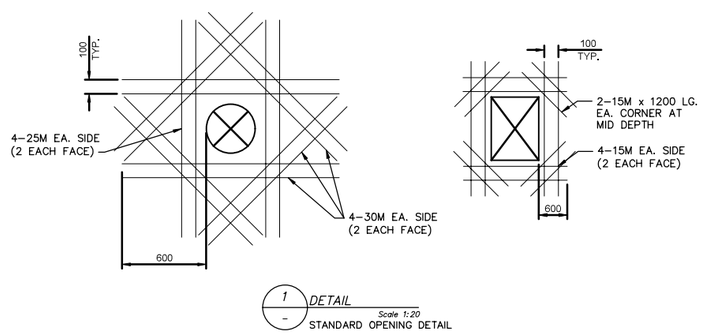
2 ROOF PLAN
Scale 1:50



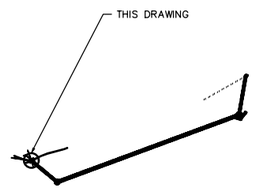
A SECTION
Scale 1:25



B SECTION
Scale 1:25



1 DETAIL
Scale 1:20
STANDARD OPENING DETAIL



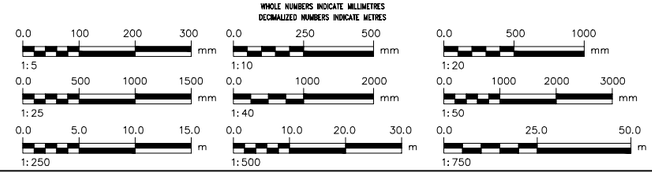
KEY PLAN

NOTES:

1. FOR GENERAL NOTES SEE S-2001.
2. LOADING:

   ROOF:
   LL = 4.8 kPa
   SDL = 1.2 kPa
   SNOW = 2.15 kPa

   FLOOR:
   SDL = 1.2 kPa
   LL = (9.81 kN/m³)*HEIGHT OF INTERIOR WALL



LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. xxxxxx
ELEV. xxx.xxxm

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	MRK

AECOM

DESIGNED BY	KB	CHECKED BY	CK
DRAWN BY	MRK	APPROVED BY	MB
SCALE: HORIZONTAL AS NOTED VERTICAL –		RELEASED FOR CONSTRUCTION	R. LUCKY
DATE 2025 05 14		DATE	

PLOT DATE: 2025 05 14
Tender No: 1010-2024A
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
S-2002

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

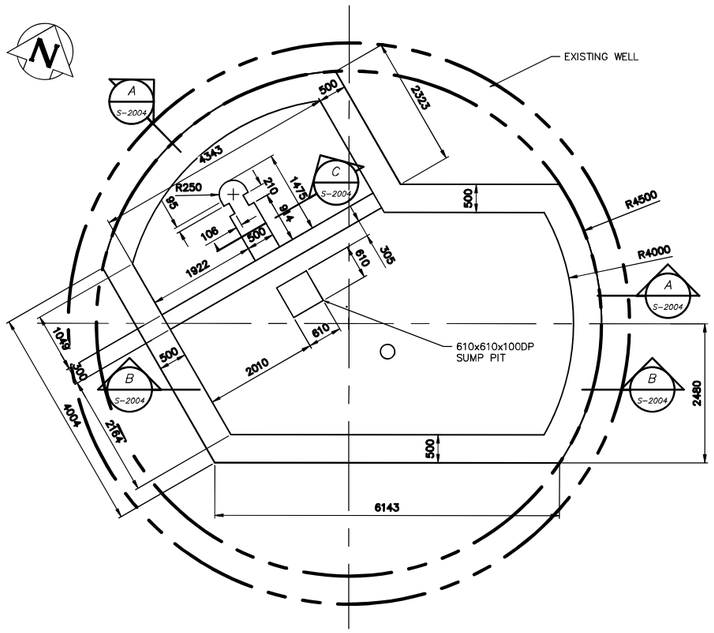
REPLACEMENT OF THE
FORT GARY ST VITAL SIPHON

DISCHARGE MANHOLE
STRUCTURAL PLANS AND SECTIONS

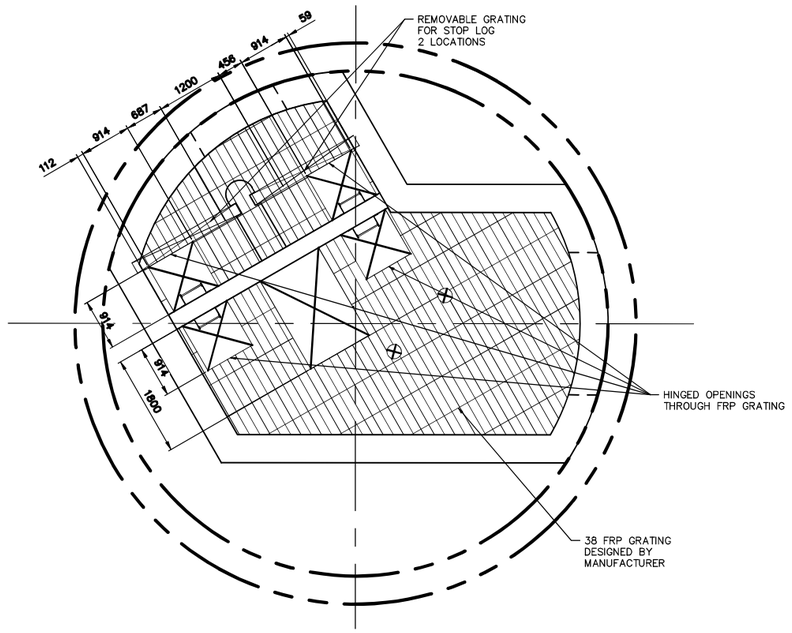
SHEET 28 OF 32
CITY DRAWING NUMBER
S-2002

FILE PATH: C:\Users\mark.kalanack\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
FILE NAME: 60728226-SHT-00-S-1003_S-2001.dwg

FOR INDEX
SEE G-1001



1 SLAB PLAN
Scale 1:50



2 FRP PLATFORM
Scale 1:50

NOTES:

1. FOR GENERAL NOTES SEE S-2001.
2. LOADING:

   ROOF:
   LL = 4.8 kPa
   SDL = 1.2 kPa
   SNOW = 2.15 kPa

   FLOOR:
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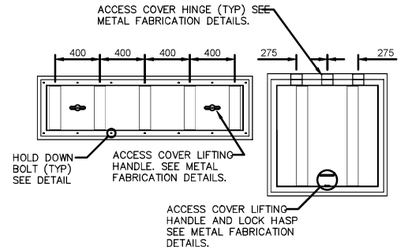
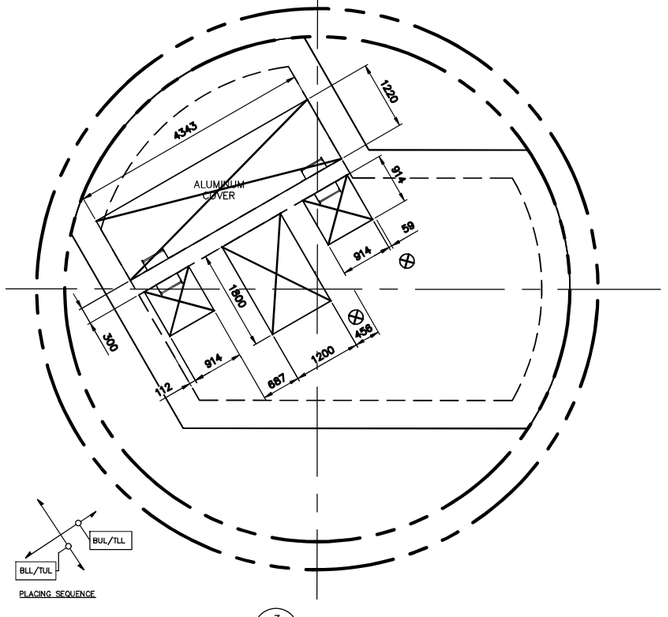
3. REINFORCEMENT PLACING SEQUENCE:

   BLL = BOTTOM LOWER LAYER
   BUL = BOTTOM UPPER LAYER
   TLL = TOP LOWER LAYER
   TUL = TOP UPPER LAYER

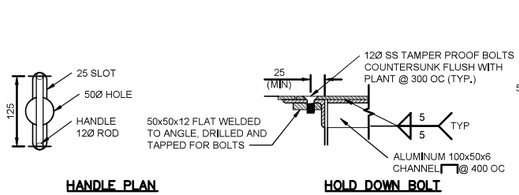


4 ACCESS HATCH COVERS
Scale 1:25



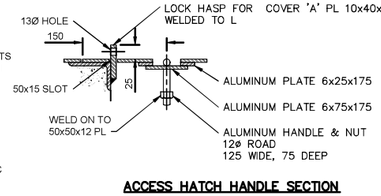
PLACING SEQUENCE

3 ROOF PLAN
Scale 1:50

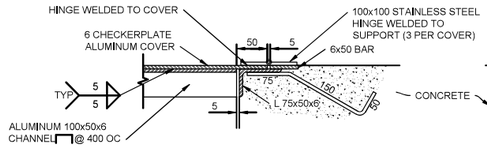


HANDLE PLAN

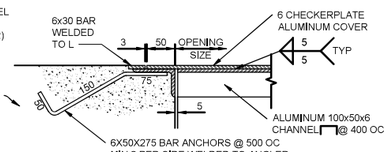
HOLD DOWN BOLT



ACCESS HATCH HANDLE SECTION

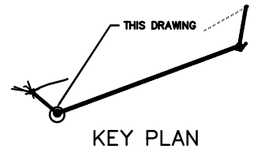


ACCESS HATCH HINGE SECTION



ACCESS HATCH FRAME SECTION

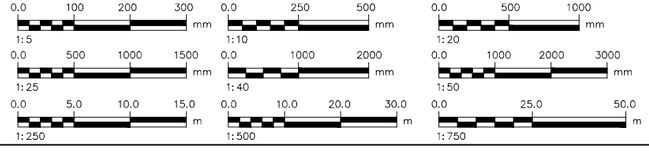
5 ACCESS HATCH METAL FABRICATION
Scale 1:25



KEY PLAN

FOR INDEX
SEE G-1001

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES



LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. xxxxxx
ELEV. xxx.xxxm
CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	MRK

AECOM

DESIGNED BY	KB	CHECKED BY	CK
DRAWN BY	MRK	APPROVED BY	MB
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 14	DATE	

PLOT DATE: 2025 05 14
Tender No: 1010-2024A
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
S-2003

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARY ST VITAL SIPHON

UPSTREAM SIPHON CHAMBER
STRUCTURAL PLANS

SHEET 29 OF 32
CITY DRAWING NUMBER
S-2003

FILE PATH: C:\Users\mark.kalanack\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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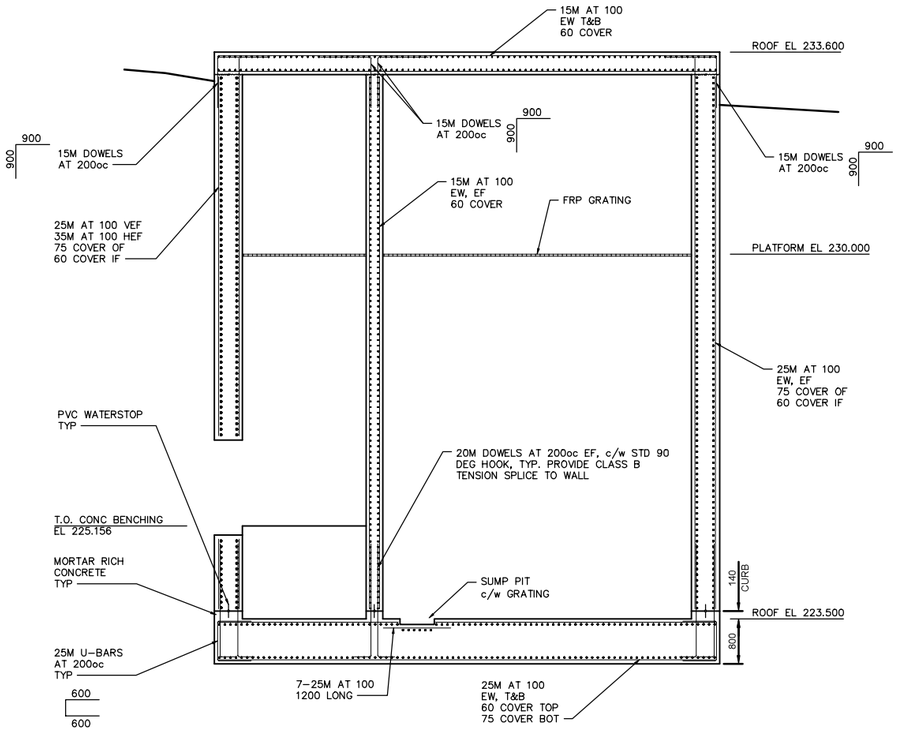

A S-2003 SECTION
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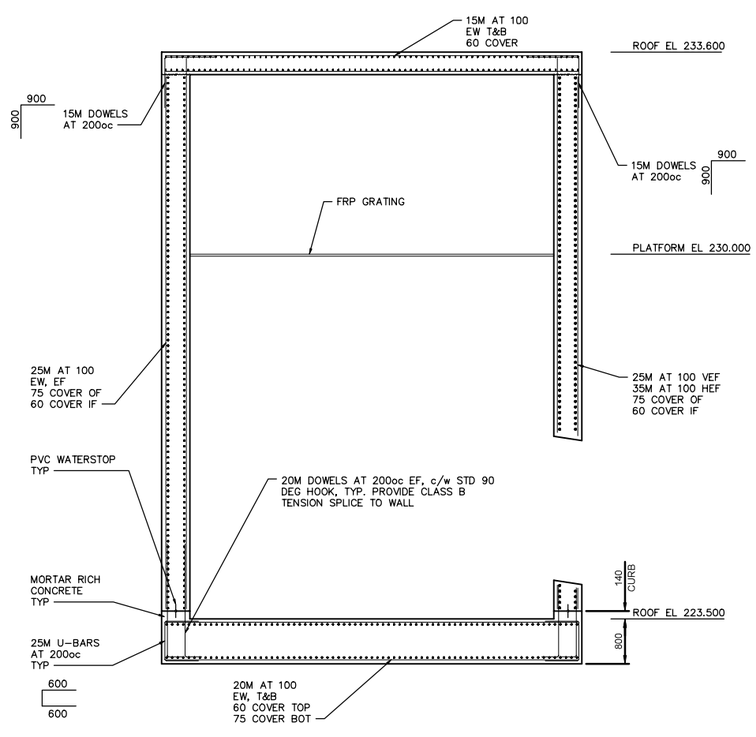
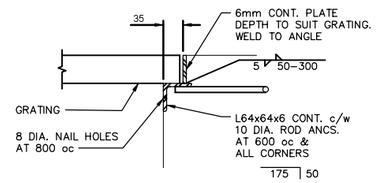


B S-2003 SECTION
Scale 1:50

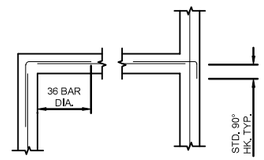
NOTES:

1. FOR GENERAL NOTES SEE S-2001.

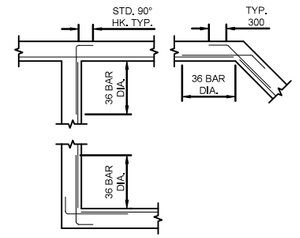


GRATING SUPPORT AT SUMP

2 – DETAIL
Scale 1:5

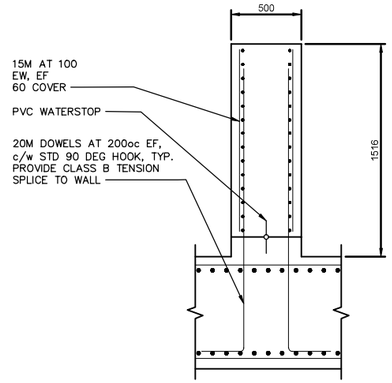


TYPICAL WALL INTERSECTION

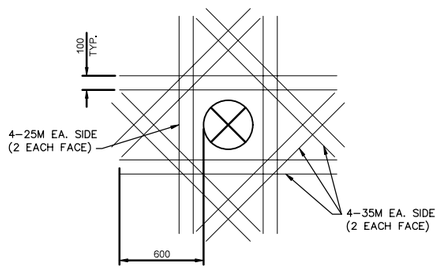


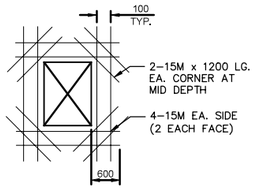
TYPICAL WALL INTERSECTION

3 – DETAIL
Scale 1:20



C S-2003 SECTION
Scale 1:50





TYPICAL REINFORCING AT WALL AND SLAB OPENINGS

1 – DETAIL
Scale 1:20

FOR INDEX
SEE G-1001

[redacted]

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
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B.M. xxxxxx
ELEV. xxx.xxxm
CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	MRK

AECOM

DESIGNED BY	KB	CHECKED BY	CK
DRAWN BY	MRK	APPROVED BY	MB
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	
VERTICAL	–		R. LUCKY
DATE	2025 05 14	DATE	

PLOT DATE: 2025 05 14
Tender No: 1010-2024A
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
S-2004

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARY ST VITAL SIPHON

UPSTREAM SIPHON CHAMBER
STRUCTURAL SECTIONS AND DETAILS

SHEET 30 OF 32
CITY DRAWING NUMBER
S-2004

FILE PATH: C:\Users\mark.kalanack\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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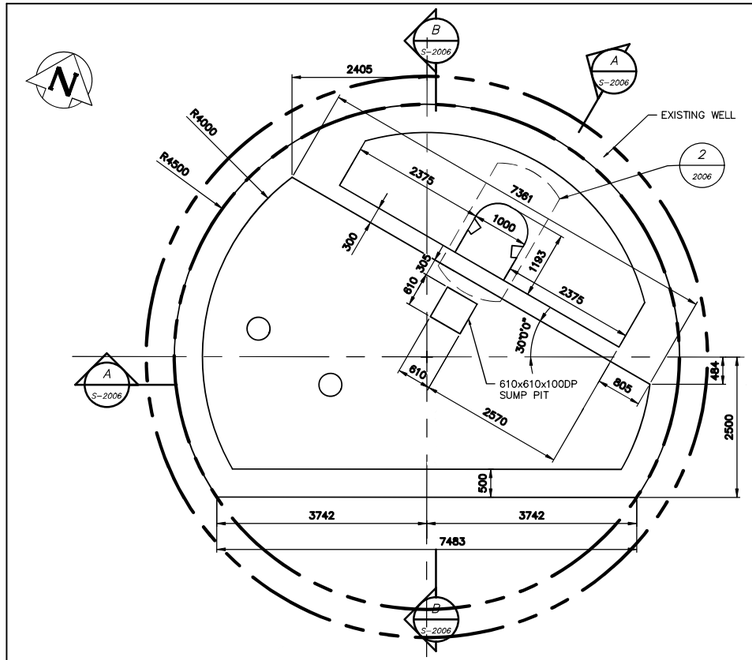
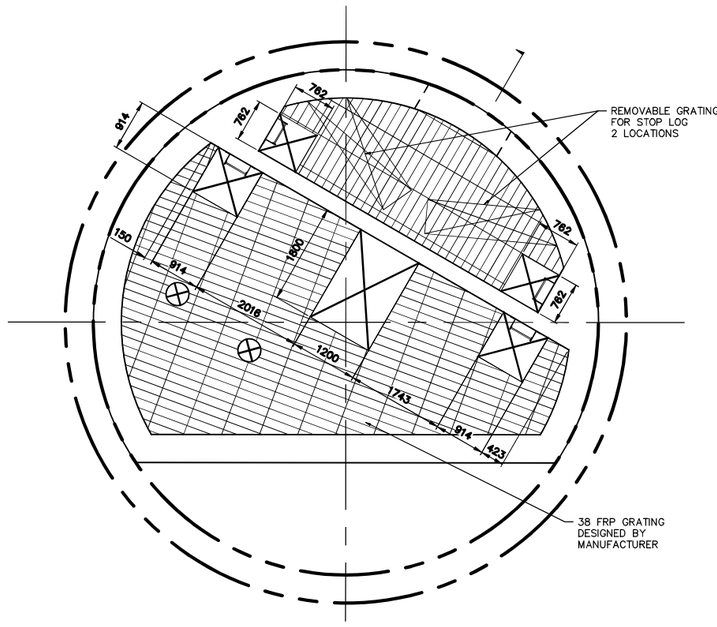
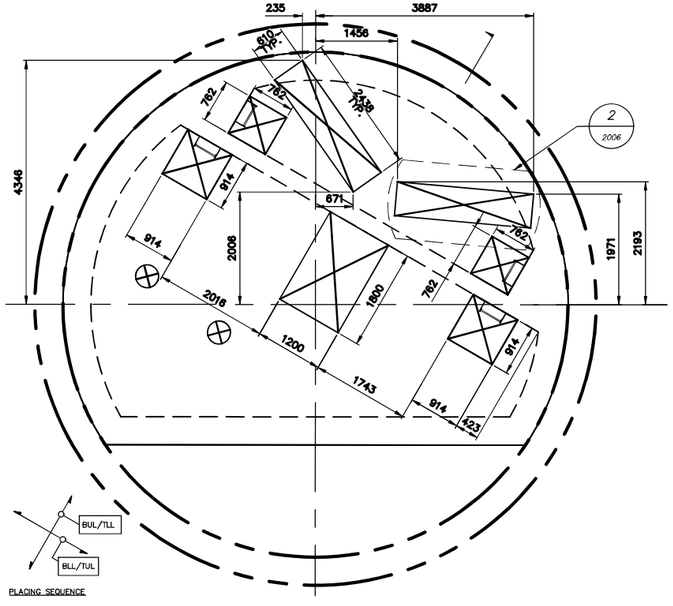


1 SLAB PLAN
Scale 1:50



2 FRP PLATFORM
Scale 1:50



PLACING SEQUENCE

3 ROOF PLAN
Scale 1:50

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

0.0 100 200 300 mm — 1:5
0.0 250 500 mm — 1:10
0.0 500 1000 mm — 1:20
0.0 500 1000 1500 mm — 1:25
0.0 1000 2000 mm — 1:40
0.0 1000 2000 3000 mm — 1:50
0.0 5.0 10.0 15.0 m — 1:250
0.0 10.0 20.0 30.0 m — 1:500
0.0 25.0 50.0 m — 1:750

NOTES:

1. FOR GENERAL NOTES SEE S-2001.
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   ROOF:
   LL = 4.8 kPa
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   FLOOR:
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   BLL = BOTTOM LOWER LAYER
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   TLL = TOP LOWER LAYER
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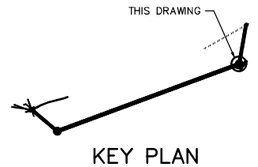
THIS DRAWING



KEY PLAN

FOR INDEX
SEE G-1001

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
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B.M. xxxxxx
ELEV. xxx.xxxm
CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	MRK

AECOM

DESIGNED BY	KB	CHECKED BY	CK
DRAWN BY	MRK	APPROVED BY	MB
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	R. LUCKY
VERTICAL	–		
DATE	2025 05 14	DATE	

PLOT DATE: 2025 05 14
Tender No: 1010-2024A
CONTRACT NUMBER:

ENGINEER'S SEAL

CONSULTANT DRAWING NUMBER
S-2005

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARY ST VITAL SIPHON

DOWNSTREAM SIPHON CHAMBER
STRUCTURAL PLANS

SHEET 31 OF 32
CITY DRAWING NUMBER
S-2005

FILE PATH: C:\Users\mark.kalanack\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
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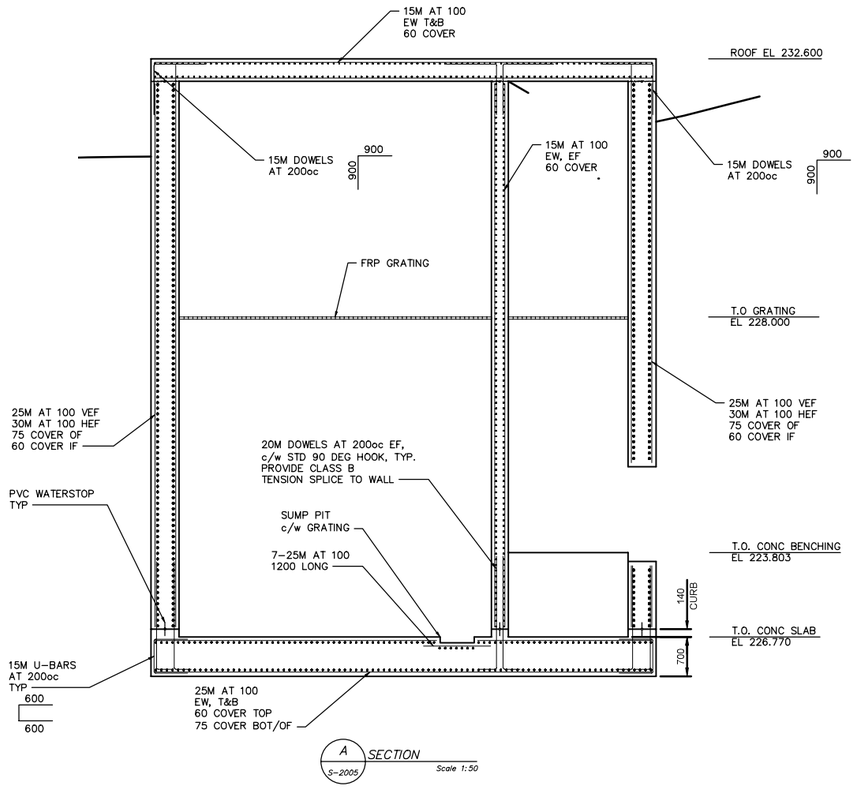
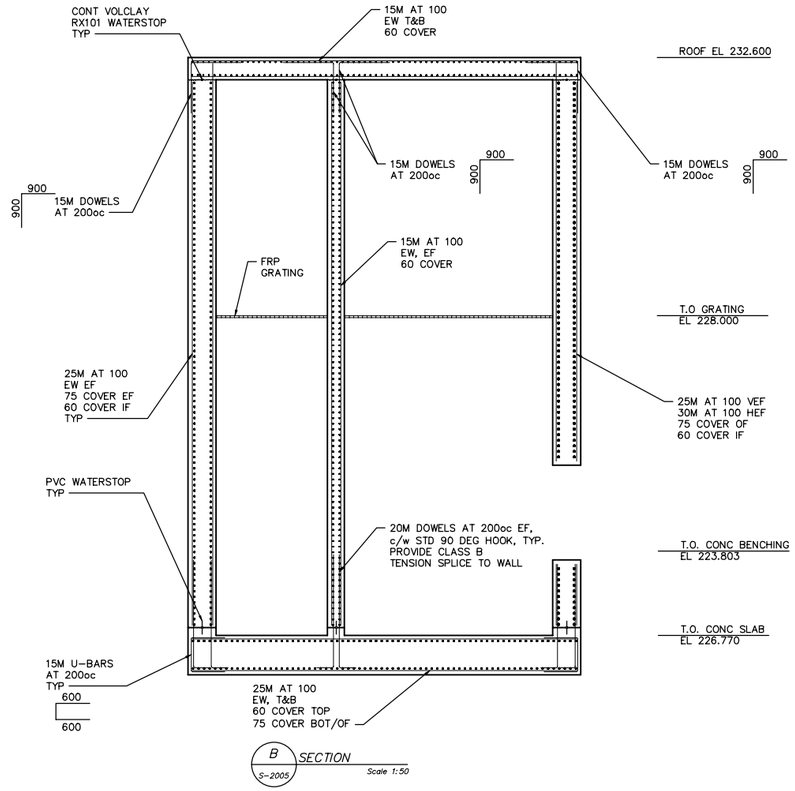


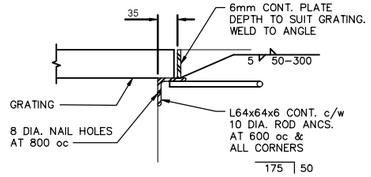
A SECTION
5-2005
Scale 1:50



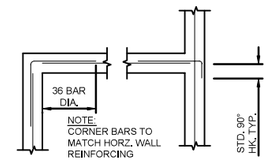
B SECTION
5-2005
Scale 1:50

NOTES:

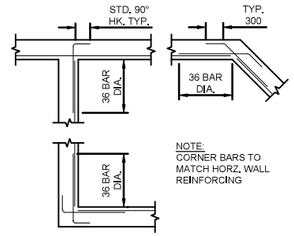
1. FOR GENERAL NOTES SEE S-2001.



2 DETAIL
-
Scale 1:5

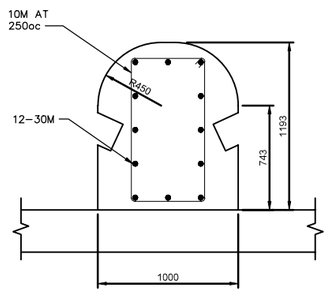


TYPICAL WALL INTERSECTION

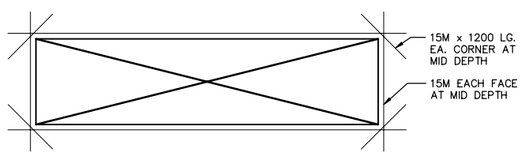


TYPICAL WALL INTERSECTION

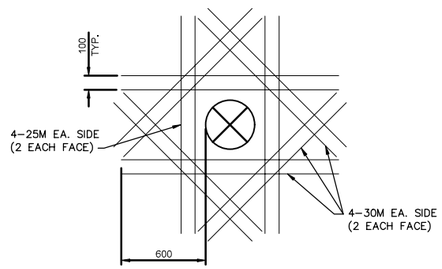
4 DETAIL
-
Scale 1:20

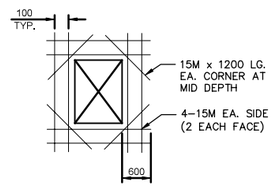


1 DETAIL
2005
Scale 1:20



2 DETAIL
2005
Scale 1:20



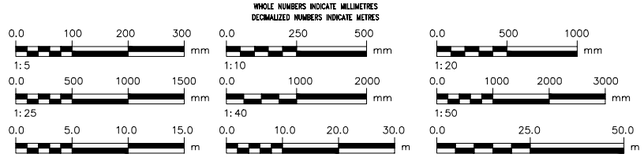


3 DETAIL
-
Scale 1:20
STANDARD OPENING DETAIL

[redacted]

FOR INDEX
SEE G-1001

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES



LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. xxxxxx
ELEV. xxx.xxxm

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25/05/14	MRK

AECOM

DESIGNED BY	KB	CHECKED BY	CK
DRAWN BY	MRK	APPROVED BY	MB
SCALE: HORIZONTAL AS NOTED VERTICAL –		RELEASED FOR CONSTRUCTION	R. LUCKY
DATE 2025 05 14		DATE	

PLOT DATE: 2025 05 14
Tender No: 1010-2024A
CONTRACT NUMBER:

ENGINEER'S SEAL
[redacted]
CONSULTANT DRAWING NUMBER
S-2006

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

REPLACEMENT OF THE
FORT GARY ST VITAL SIPHON

DOWNSTREAM SIPHON CHAMBER
STRUCTURAL SECTIONS AND DETAILS

SHEET 32 OF 32
CITY DRAWING NUMBER
S-2006

FILE PATH: C:\Users\mark.kalanack\DC\ACCDocs\AECOM\60728226-Replc-of-FGSV-Siphon\Project Files\900 Design Collaboration\20 Detailed Design\S\SHT\
FILE NAME: 60728226-SHT-00-S-1003_S-2005.dwg

AECOM Canada ULC
99 Commerce Drive
Winnipeg, MB R3P 0Y7
Canada

T: 204.477.5381
F: 431.800.1210
aecom.com

VIA EMAIL (barsha.sagan@gov.mb.ca)

July 24, 2025

Project #	***Client Reference:***
60728226	1069.10

Barsha Sagan
Environmental Approval Branch
Environmental and Climate Change
14 Fultz Boulevard
Winnipeg, MB R3Y 0L6

Subject: NOA - City of Winnipeg – SEWPCC - Fort Garry-St. Vital Siphon Replacement – File No. 1069.10

Dear Ms. Sagan:

This letter is in response to the queries received from the Environmental Approvals Branch date July 24, 2025.

Question 1. How will the excavated material from MTBM activities be managed during the construction period?

The Contractor will be responsible for disposing excavated materials off-site at a suitable location as follows. The disposal of excavated materials will be completed in accordance with City of Winnipeg Tender 1010-2024B:

- Remove muck and excavated material from the project site and dispose of spoil as noted below.
- Locate and acquire a site for the legal disposal of muck and excess excavated material and dispose of same in accordance with all applicable laws and regulations.

Question 2. Should any excavation dewatering activities be required during the construction period, how will the water be managed?

The Contractor will not be allowed to dewater the underlying aquifer, and only permitted to dewater the excavation due to seepage from overburden soils, silt and sand seams, or from existing trench bedding and backfill. The management of excavation dewatering will be completed in accordance with City of Winnipeg Tender 1010-2024B:

- The Contractor is responsible for the control, diversion, storage and pumping of all water including without limitation rain, snow melt, groundwater, leaking infrastructure and water in pipes throughout all stages of the Work.
- Do not pump or drain any water containing excessive suspended materials or harmful substances into waterways, sewers or other drainage systems. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with the governing authority's limitations and requirements.
- Dispose of all water drained or pumped as above by discharging it into sewers, drainage ditches or natural water courses as reviewed by the Contract Administrator, and in compliance with all local, Municipal, Provincial and Federal environmental regulations, ordinances, bylaws, etc., and provide documentation indicating that authority has been granted to discharge effluent water into any drainage ditch, brook, creek or river. The Contractor shall develop and implement at their own cost any filtration, settlement or other acceptable treatment methods required prior to disposal.

We trust the above is satisfactory.

Sincerely,
AECOM Canada ULC

Mike Gaudreau, P. Eng.
Municipal Engineer
Conveyance, Water
MG/pab

cc: C. Wiebe, City of Winnipeg, WWD (cwiebe@winnipeg.ca)
R. Lucky, City of Winnipeg WWD (ryanlucky@winnipeg.ca)
M. McDonald, AECOM
M. Krentz, AECOM