Peter Kiewit Sons ULC

Kiewit WCD Marine Yard

Build-Out Project

1950 Brigantine Drive, Coquitlam, BC

VFPA PER No. 23-130

STORMWATER POLLUTION PREVENTION PLAN (SPPP)

Revision	Date	Remarks
A	April 11, 2024	Issued for Review
B	October 20, 2024	Issued for Review

Prepared by:

Kiewit

Peter Kiewit Sons ULC

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1 INTRODUCTION

This Stormwater Pollution Prevention Plan (SPPP) is developed for the construction of the Peter Kiewit Sons ULC (Kiewit) Marine Yard Build-Out Project (the Project) and the operation of the Marine Yard (the Yard).

The purpose of the SPPP is to develop a pollutant control strategy to minimize the discharge of pollutants by stormwater runoff. Best Management Practices (BMPs) are those management practices which are considered sound, are relatively low in cost, and are applicable to a broad category of industries and types of pollutants. Advanced BMPs are defined as those which are specific to a type of industry or pollutant. The BMPs discussed in this plan have been designed to improve the quality of stormwater discharged from the facility and to aid in the development and implementation of the SPPP.

2 PROJECT DESCRIPTION

2.1 Location

As shown in Figure 1, the Project is located at the Vancouver Fraser Port Authority (VFPA) water lot lease at 1950 Brigantine Drive, Coquitlam, BC on the north side of the main arm of the Fraser River at the eastern end of Sapperton Channel approximately 2.2 km downstream of the Port Mann Bridge. At the Project location, the Fraser River is considered freshwater as the upper boundary of the Fraser River salt wedge is at the downstream end of Sapperton Channel.

Figure 1: Project Location

2.2 Current Use

At present, the property is used to service Kiewit's marine fleet and other construction equipment. Yard operations generally consist of staging equipment and materials on land, transferring materials to/from barges and fabrication of materials required for our projects. A Disposal At Sea (DAS) operation is also conducted from the facility. The Marine Yard has several structures and fixed facilities that were installed by the previous owner, including an office building, truck weigh scale, boat ramp, and two marine bulkhead wall structures.

2.3 Project Scope

Kiewit is planning to build-out the Marine Yard to ensure it meets modern environmental and engineering standards. The following is a summary of the proposed project upgrades and are also shown in Figure 2.

2.3.1 First Phase

- Dredging in the intertidal area to a depth of approximately -6.5 chart datum (CD) for safe operation of marine construction equipment, including barges and support vessels; and,
- Removal and relocation of existing piles to accommodate marine equipment (barges).

2.3.2 Second Phase

- Infilling and yard widening between the proposed access trestle and DAS loading platform (outlined in bold green and pink in the site plan, below), approximately 3,600 square metres;
- Creation of three barge mooring zones by installing steel pipe pile mooring dolphins;
- Installation of a marine access trestle for barge loading and unloading;
- Installation of a DAS loading platform approximately 1,122 square metres and conveyor system;
- Uplands works:
    - Electrical and lighting upgrades;
    - Grading;
    - Drainage and new stormwater infrastructure to accommodate the infilled area;
    - Domestic water supply connection;
    - Installation of a truck scale;
    - Installation of a truck wheel wash; and,
- Creation of onsite habitat offsetting – approximately 7,745 square metres of intertidal marsh bench (Fisheries Act Authorization offsetting area).

The Department of Fisheries and Oceans Canada determined that elements of the Project were likely to result in Harmful Alteration Disruption or Destruction (HADD) of fish habitat, therefore, habitat compensation is required to offset the HADD.

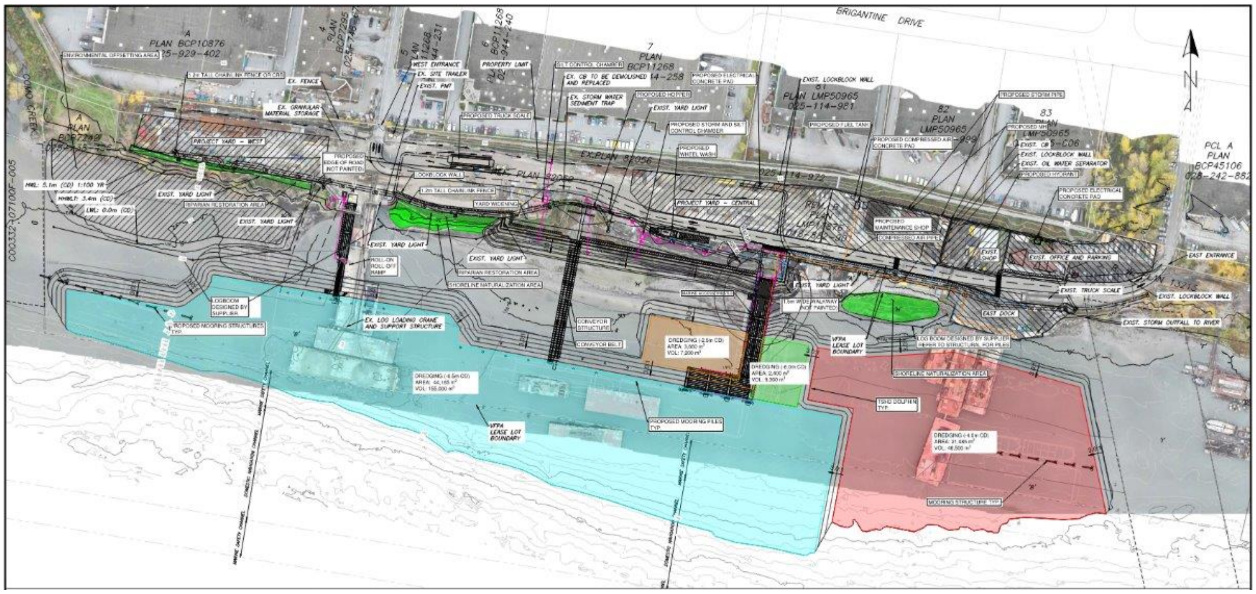


Figure 2: Proposed Project Upgrades

2.4 Activities

The following activities are expected to occur during both the construction of the Project and operation of the Yard.

2.4.1 Construction

- Excavation, infill, grading and paving;
- Demolition of existing structures;
- Fueling, maintenance and washing of construction equipment;
- Cast-in-place concrete work;
- Aggregate storage;
- Material preparation (e.g., cutting, welding, cleaning, painting);
- soil and water sampling;
- waste handling, storage and disposal; and,
- soil and water sampling.

2.4.2 Operations

- Aggregate storage and handling;

- Barge loading;
- Barge maintenance;
- Fueling, maintenance and washing of equipment;
- Equipment and small truck storage;
- Material preparation (e.g., cutting, welding, cleaning, painting); and
- waste handling, storage and disposal.

2.5 Potential Pollutant Sources

An assessment of the Marine Yard was conducted to identify materials and practices which may reasonably be expected to add significant levels of pollutants to stormwater or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Potential sources which may contribute to the presence of contaminants in stormwater runoff are listed below.

- Metals;
- Aggregates;
- Uncured concrete;
- Asphalt paving;
- Washwater;
- Fuels, oils and other hydrocarbons;
- Paints and solvents;
- Cleaning products;
- Antifreeze;
- Solid waste;
- Sanitary waste from blueboys;
- Hazardous waste;
- Contaminated soils; and,
- Dewatering water.

2.6 Hydrologic Assessment

A hydrologic assessment was conducted for the final design of the site to estimate the runoff response, including peak flow rates and runoff volumes for various rainfall events. The design of the site stormwater management system will take into account the results of the hydrological assessment to ensure the stormwater infrastructure is appropriate for the site.

2.6.1 Drainage Design Criteria

The following criteria and assumptions were considered for the design of the Yard drainage system.

- Rational Method used to estimate the design flows;
- Model used rainfall data from the City of Coquitlam Zone 3 rainfall station;
- The 2021 Intensity-Duration-Frequency (IDF) curve was used to evaluate the capacity of the existing infrastructure;
- The 2050 IDF curve was used to evaluate the capacity of the new drainage infrastructure;
- The catch basins and piping systems were designed to accommodate 10-year storm event flows;
- Personal Computer Storm Water Management Model (PCSWMM) software was used to analyze the peak flow for the water quality volume design with the following assumptions:
    - The 24-hour rainwater depth for 2050 is 96mm;
    - The water quality design volume for the sediment control chambers was designed to treat the runoff volume resulting from the 24-hour storm with a 6-month return period. The 6-month 24-hour storm was estimated as 70% of the 2-year 24-hour storm; and,
    - The equation for calculation of the sediment chamber surface area is A=Q/Vs, where:

        A= Surface area of the sediment chamber (m2);

        Q= Flow rate (m^3/s);

        Vs = Sediment setting velocity (m/s) and,

        Coarse silt is assumed to be the sediment particles for the site, the setting velocity is 0.0026 m/s.

Modeling Results

	Peak Flow (m^3/s)	Catchment Area (m2)
To Sediment Chamber	0.038	6160

Table 1. Modeling Result the 2-Year, 24-hour storm event.

The peak flow for the 6-month rainfall event is 0.039 x 70% = 0.0266 (m^3/s) and the required surface area for the sediment chamber will be 10.2m^2.

2.6.2 Existing Site Drainage System

The majority of the site is graded with a slope that runs transversely from the south to the north, and longitudinally from the west to the east.

The existing yard drainage system is composed of two separate sediment control facilities each connected to a single catch basin. The existing drainage system was installed by the previous property owner at an unknown date. The existing drainage system collects and treats the storm water runoff from the west and east portions of site before getting discharged to the Fraser River.

The runoff from the west portion of the site drains to a swale located along the north property line at the bottom of the City of Coquitlam greenway slope along the back of the property. At the end of the swale, a lawn basin was installed to collect the runoff and direct it to the west sediment control facility via a culvert that passes directly under the yard. The treated water overflows from the sediment control facility and is directed towards its discharge point into the Fraser River.

The catchment areas for the west sediment control facility are as follows:

- City of Coquitlam property: 5489 m^2
- Freehold property: 3456 m^2
- VFPA leased land: 3456 m^2

The runoff from the eastern section of the site is collected through swales and catch basins and directed towards the east sediment control facility via a culvert. The existing east section system contains an oil-water separator which is located between the existing maintenance shop and the future maintenance shop. The treated water overflows from the sediment control facility and is directed towards its discharge point into the Fraser River.

The catchment areas for the western sediment control facility are as follows:

- Freehold property: 21067 m^2
- VFPA leased land: 805 m^2

Key existing drainage features are identified in Figure 3.

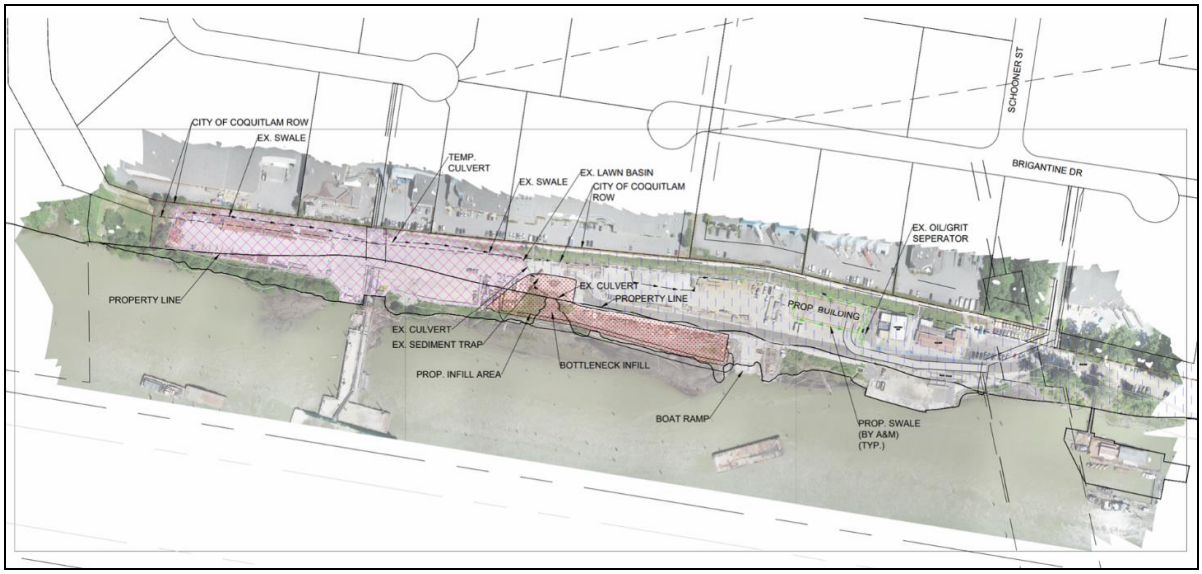


Figure 3: Existing Drainage Features

Development of the site will involve a localized expansion of the yard's finished grade at both the Bottleneck area, and the area located directly to the east (between the bottleneck area and the existing boat ramp). While a new stormwater drainage system is proposed for the expanded catchment area, drainage design recommends maintaining the existing system for the original catchment areas as follows:

West Drainage area

- Maintain the existing swale located within the City of Coquitlam (CoC) Right-of-Way ensuring compliance with the CoC drainage regulations and guidelines;
- Implement measures prevent erosion and stabilize exposed bare soils (e.g., installation of erosion control blankets, riprap, hydroseeding, etc.);
- Regularly inspect and maintain the erosion control socks to prevent sediment from entering the lawn basin; and,
- Relocate the existing sediment trap of similar size to a suitable location, post construction.

East Drainage area

As there is currently no yard development scope that will impact the existing east drainage area facilities, no modifications to the existing system are required. Inspection and maintenance for the existing east drainage facilities should continue to prolong service life.

2.6.3 Proposed New Site Drainage System

As part of the overall development, a plan has been formulated to infill the bottleneck area and expand the yard width to the south for a section with a linear distance of approximately 120 meters parallel to the shoreline in the eastward direction (see Figure 3). This extension aims to create more space to accommodate dump truck traffic at the bottleneck area and widen the existing yard capacity from 6 to 12 meters. The infilling and yard expansion process will result in a new catchment area of approximately 4,240 m^2 with an asphalt pavement top finish.

The expansion will add additional stormwater runoff that will need to be managed by a new drainage system. Construction of a new drainage system is recommended over modification of the existing system due to uncertainty with the existing system and to avoid upgrading the complete existing system to current standards. This strategy also avoids the need for a comprehensive hydrological and hydraulic analysis of the existing drainage system. The proposed new drainage system will include the following components:

Outfalls:

The new drainage design will include three new outfalls and the extension of existing outfall. The outfalls are numbered 1 through 4 on drawing DWG-4101 provided in Appendix A. Design information for the four outfalls is as follows:

- **Outfall 1**: This outfall serves the new timber surface run-on-off, with a total catchment area of 278 m^2. The 10-year discharge rate is 0.0045 m^3/s.
- **Outfall 2**: This outfall involves the relocation of the existing silt control chamber. The sediment control facility was reconstructed in Spring 2023 using precast concrete lock

blocks, with internal dimensions of 6.70 m (length) x 2.13 m (width) and a sump depth of approximately 0.35 m. Due to yard expansion, the existing sediment trap will be removed and replaced with a new silt control chamber upstream of Outfall 2.

- **Outfall 3**: This outfall is an extension of an existing 600 mm outfall, which discharges groundwater from the City of Coquitlam. No record information is available for this discharge.
- **Outfall 4**: A new drainage system, including a silt control chamber, will collect runoff from an additional 4,240 m² from the yard expansion and 1,376 m² from the new timber surface trestle. The total discharge rate for a 10-year storm event is 0.071 m³/s.

Sump Manhole with Grate Lid:

Along the infilled areas, sump manholes with grate lids will be constructed. These manholes will collect and convey stormwater runoff from the infilled area, facilitating effective drainage.

Sediment Control Chamber:

To enhance sedimentation treatment, a sediment control chamber will be installed. This chamber will help capture and retain sediment, preventing it from entering the Fraser River. By implementing the proposed separate drainage system for the infilled area, we can effectively manage the increased stormwater runoff and mitigate potential sedimentation issues. The combination of a riprap lined swale, a sediment control chamber will contribute to the overall sustainability and environmental compliance of the project.

Design drawings showing the details of the proposed new drainage system details is provided in Appendix A.

3 ISSUES IDENTIFICATION AND RISK ANALYSIS

3.1 Applicable Standards, Acts and Regulations

The following relevant legislation and standards are applicable given the potential pollutant sources listed above.

- Canada *Fisheries Act* regarding the deposition of deleterious substance in waters frequented by fish;
- Canada *Shipping Act*, National Spill Response Protocol regarding the release of pollutants to the marine environment;
- Canada *Environmental Protection Act* regarding the management of harmful substances;
- *Canada Transportation of Dangerous Goods Act* – regarding the transportation of dangerous goods;
- Canadian Council of Ministers of the Environment (CCME) Guidelines relating to water quality standards;
- *B.C. Environmental Management Act,* regarding the unauthorized release of substances into the environment;
- *B.C. Environmental Management Act,* regarding the storage, handling, and disposal of hazardous materials and waste;
- Master Municipal Construction Documents, MMCD, Platinum Edition;
- Metro Vancouver Stormwater Design Guidelines; and,
- City of Coquitlam Stormwater Management Policy and Design Manual.

3.2 Potential Sensitive Receptors

According to the *Vancouver Fraser Port Authority Land Use Plan* (December 8, 2020), the Marine Yard is located in Planning Area 5, Fraser River Central and designated as 'Industrial' land use. The Marine Yard is located at the Vancouver Fraser Port Authority (VFPA) water lot lease at 1950 Brigantine Drive, Coquitlam, BC on the north side of the main arm of the Fraser River at the eastern end of Sapperton Channel approximately 2.2 km downstream of the Port Mann Bridge.

Directly west of the Marine Yard lies Don Roberts Park and Como Creek. To the east lies the Fraser River Greenway Park with trail access from the alleyway at 1950 Brigantine Drive. While there are no residential areas within 500 meters of the Yard site currently, a future residential development of Fraser Mills is planned west of Como Creek.

Como Creek has been identified as critical habitat for the western painted turtle (Chrysemys picta bellii), Pacific Coast population which is a species listed on Schedule 1 of the *Species at Risk Act* (SARA). Subsection 58(1) of SARA contains prohibitions against destroying any part of critical habitat for at-risk species on federal land, including the VFPA lease area. An application for a SARA permit has been submitted to ECCC for the portion of the Marine Yard VFPA lease area that overlaps with western painted turtle critical habitat.

The stormwater design for the Yard has all stormwater runoff directed through four outfall pipes into into the Fraser River. The implementation of this SPPP, associated mitigation measures and stormwater design will minimize harmful impacts from stormwater runoff to Fraser River.

3.3 Identified Issues

Given that grain and grain dust recovery systems will be in place during terminal operation, the risk of the release of these potential pollutants into stormwater is considered to be low.

There will be no large tank-type bulk fuel storage during the operational phase of the project. The storage area for small amounts of fuels, coolants hydraulic oils and lubricating oils used for maintenance purposes will be in a centralized location having secondary containment. Given that the potential source for the release of these pollutants into the environment will be primarily during maintenance operations (either planned or from equipment failure), operations crews conducting the maintenance will immediately clean up and report all spills in accordance with the site Spill Prevention and Emergency Response Plan. The risk for the introduction of chemical pollutants will be low with an effective implementation of the Spill Prevention and Emergency Response Plan.

3.4 Identified Pollutant Pathways

The only pollutant pathway for the site will be via the stormwater drainage system. The entire site will be graded so that all rainfall and snow melt is directed into a network of catch basins and sub-grade culverts to the outfalls.

A detailed site drainage plan drawings provided in Appendix A include the details on the two oil-water-grit interceptors (commercial name 'Stormceptor') and two sediment chambers. The site drainage drawing includes the following features:

- The direction of flow through the stormwater system;
- Catchment area boundaries;

- Stormwater drainage infrastructure;
- Stormwater drainage collection points;
- Stormwater drainage release points from the site;
- Location of treatment and retention units; and,
- Receiving water bodies.

4 STORMWATER POLLUTION PREVENTION PLAN

4.1 Management Strategy

The Marine Yard stormwater pollution prevention strategy is to implement a set of best management practices to target the potential pollutant sources identified in section 4.2 of this plan. These practices will encompass prevention, containment, reduction and treatment.

4.1.1 Good Housekeeping

Maintenance of work areas which may contribute pollutants to stormwater will be the most effective management practice for this site. Good housekeeping practices are not only beneficial in terms of limiting exposure of materials to stormwater, but they also improve worker safety and often contribute to reducing losses of products thereby lowering operational or capital costs.

Good housekeeping will be practiced throughout the facility. All exposed areas of the facility are maintained in a clean and orderly manner. Trash and other waste products are removed from the site on a regular basis. Routine inspections are made to ensure that good housekeeping is being practiced.

4.1.2 Preventive Maintenance

The Marine Yard will employ a preventive maintenance program that includes inspections, testing, maintenance, and repairs of facility equipment and systems whose failure could result in a non-stormwater discharge is in place at the facility.

4.1.3 Inspections

A regular inspection schedule will be developed and implemented for the key areas of the stormwater system including but not limited to:

- Catch basin inlets;
- Interceptor ditches;
- Oil-water-grit separators; and,
- Sediment chambers.

The frequency of inspection will be at least monthly and after heavy rainfall events.

4.1.4 Containment/Reduction

All hazardous material storage areas will be equipped with secondary containment to reduce the likelihood of stormwater to become contaminated by their contents. If the secondary containment accumulates stormwater, the water will be examined to ensure it is free of oil, foam or discoloration prior to being drained.

In areas where there is a likelihood of solid contaminants entering a wastewater drain, the drain will be equipped with a screen to reduce the amount of solids allowed to enter the storm drain.

4.1.5 Spill Prevention and Response Procedures

Spill prevention and emergency response procedures are outlined in the Spill Prevention and Emergency Response Plan found in the Project Construction Environmental Management Plan (CEMP).

4.1.6 Treatment

Prior to leaving the property, the stormwater effluent will pass through one of two Stormceptor oil-water-grit (OWG) interceptors. The OWG interceptors are designed to remove sediment, total suspended solids, hydrocarbons and free oil from stormwater runoff. The model is appropriately sized for the predicted storm events for the site. The OWG interceptors will further reduce the chance of discharging any sediment and oily contamination in the stormwater discharge. The OWG interceptors will be inspected and cleaned, as required.

5 IMPLEMENTATION AND MONITORING

5.1 Inspections

Marine Yard Management will identify an operational SPPP Manager who will be responsible for the implementation of this plan. The SPPP Manager will possess the knowledge and skills to assess conditions and activities that could impact stormwater quality at the facility, and who can also evaluate the effectiveness of the management practices.

Regular site and effluent inspections shall be conducted by the SPPP Manager to confirm that stormwater best management practices (BMPs) outlined in this plan are being implemented effectively and to identify any possible concerns related to the quality of stormwater effluent.

At a minimum, the SPPP Manager will conduct weekly inspections of all areas of the facility where industrial materials or activities are exposed to stormwater and/or where the potential for exposure to stormwater exists. Such areas specifically include aggregate receiving areas, aggregate storage areas, aggregate loading areas, the areas around fuel and hazardous storage, the areas where vehicle or equipment maintenance takes place, and waste disposal areas.

In addition to the weekly inspections, the SPPP Manager will monitor local weather reports for upcoming storm events and conduct inspections during a period when a stormwater discharge is occurring. The effluent will be inspected for the presence of odor, foam, discoloration, sediment and/or an oily sheen. If stormwater effluent is found to be abnormal, the cause of the abnormality

will be investigated, and appropriate mitigating action will be taken to return the quality of the stormwater effluent to normal and prevent future reoccurrences.

All SPPP inspections will be documented in an SPPP inspection form that will include weather, BMPs inspected, effluent inspected, effectiveness of the BMPs, any repairs/maintenance of existing BMPS, any new BMPs proposed, the personnel responsible in BMP maintenance or installation and a timeline for completion of the prescribed maintenance or installation.

All operational site staff will receive training on the contents of this plan at hire orientation and annually. The training will clearly indicate that it is the responsibility of all staff to be able to recognize ineffective stormwater BMPs and to report them to their supervisor, the SPPP Manager and/or site management.

Marine Yard Management and the SPPP Manager will review the contents of this plan annually to ensure all potential stormwater exposures have been identified and that the management practices are appropriate and adequate. The plan will be updated to reflect any changes deemed necessary because of this annual review. Inspection reports, monitoring data and stormwater management plan updates will be made available to the port authority upon request.

5.2 Water Quality Monitoring

Water discharged from the site will be monitored to confirm that turbidity, total suspended solids and pH levels meet the BC Approved Water Quality Guidelines as outlined in Table 2. Table 2 provides specific criteria for monitoring these parameters to ensure compliance with environmental protection standards. Water quality monitoring sampling locations will be at the current outfalls during construction and then at the four new outfalls once construction is complete.

Parameter	Criteria
Nephelometric Turbidity Units (NTU)[1]	**Clear Waters (During Clear Flows or in Clear Waters):** • Change from background of 8 NTU at any one time for a duration of 24 hours. • Change from background of 2 NTU at any one time for a duration of 30 days. **Turbid Waters (During High Flows or in Turbid Waters):** • Change from background of 5 NTU at any time when background is 8 to 50 NTU. • Change from background of 10% when background is >50 NTU at any time.
Oil and Grease[2]	Not detectable by sight or odour.
pH[1]	6.5-9.0

[1]Values are from B.C. Approved Water Quality Guidelines (Criteria).
[2]Criterea from for Canadian Recreational Water Quality: Physical, Aesthetic and Chemical Characteristics, 2021.

Table 2 Water Quality Guidelines: Turbidity, Oil & Grease, and pH Standards

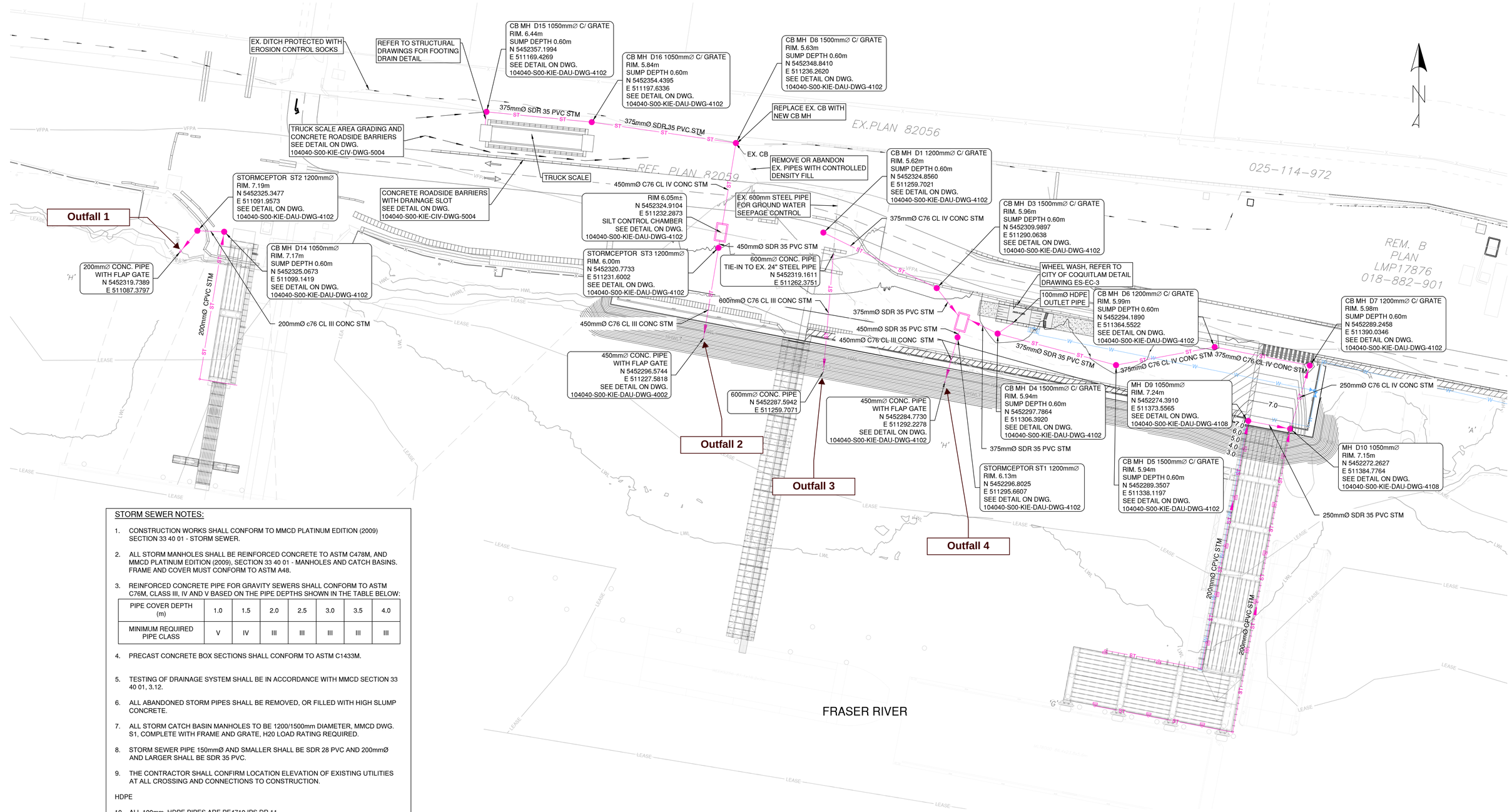
5.3 Adaptive Management and Continuous Improvement

A key process in the effective implementation of the SPPP is the ability to change mitigation measures or actions as site conditions warrant to protect stormwater quality. This approach, generally termed as 'adaptive management', is a planned and systematic process for continuously improving environmental management practices by learning about their outcomes.

On a bi-annual basis, the SPPP Manager along with site management will review the SPPP effectiveness by reviewing the SPPP inspection reports for trends in effective and ineffective mitigation actions and measures. The results of these reviews may determine that current BMPs are working effectively, or additional mitigation efforts are needed. Any changes to the actual SPPP will also be in the review. The reviews will be minuted with clear action items, those responsible and timelines for completion.

Appendix A

Marine Yard Stormwater System Design Drawings



STORM SEWER NOTES:

1. CONSTRUCTION WORKS SHALL CONFORM TO MMCD PLATINUM EDITION (2009) SECTION 33 40 01 - STORM SEWER.
2. ALL STORM MANHOLES SHALL BE REINFORCED CONCRETE TO ASTM C478M, AND MMCD PLATINUM EDITION (2009), SECTION 33 40 01 - MANHOLES AND CATCH BASINS. FRAME AND COVER MUST CONFORM TO ASTM A48.
3. REINFORCED CONCRETE PIPE FOR GRAVITY SEWERS SHALL CONFORM TO ASTM C76M, CLASS III, IV AND V BASED ON THE PIPE DEPTHS SHOWN IN THE TABLE BELOW:

PIPE COVER DEPTH (m)	1.0	1.5	2.0	2.5	3.0	3.5	4.0
MINIMUM REQUIRED PIPE CLASS	V	IV	III	III	III	III	III

4. PRECAST CONCRETE BOX SECTIONS SHALL CONFORM TO ASTM C1433M.
5. TESTING OF DRAINAGE SYSTEM SHALL BE IN ACCORDANCE WITH MMCD SECTION 33 40 01, 3.12.
6. ALL ABANDONED STORM PIPES SHALL BE REMOVED, OR FILLED WITH HIGH SLUMP CONCRETE.
7. ALL STORM CATCH BASIN MANHOLES TO BE 1200/1500mm DIAMETER, MMCD DWG. S1, COMPLETE WITH FRAME AND GRATE, H20 LOAD RATING REQUIRED.
8. STORM SEWER PIPE 150mmØ AND SMALLER SHALL BE SDR 28 PVC AND 200mmØ AND LARGER SHALL BE SDR 35 PVC.
9. THE CONTRACTOR SHALL CONFIRM LOCATION ELEVATION OF EXISTING UTILITIES AT ALL CROSSING AND CONNECTIONS TO CONSTRUCTION.

HDPE

10. ALL 100mm HDPE PIPES ARE PE4710 IPS DR 11.
11. ALL HDPE JOINTS SHALL BE HEAT BUTT FUSION WELDED TO ASTM D2657 AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
12. ALL HDPE FITTINGS SHALL BE HDPE MITERED FITTINGS TO AWWA C906 OR HDPE MOLDED FITTINGS TO ASTM 3261 UNLESS NOTED OTHERWISE.

PRELIMINARY
NOT FOR CONSTRUCTION
2024-MAR-01

VFPA DRAWING NUMBER:
332-004-UT-###

Ref. No.	REFERENCE

Kiewit

No.	Date	REVISION	Dr'n	Ch'd
E	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
D	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
C	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.
B	2023-SEP-27	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-AUG-23		T.W.	B.Y.

PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	1:500
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
STORM OVERALL PLAN AND NOTES

SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4101	1 OF 1	E

DATE: 2024/03/21 - 2:14pm
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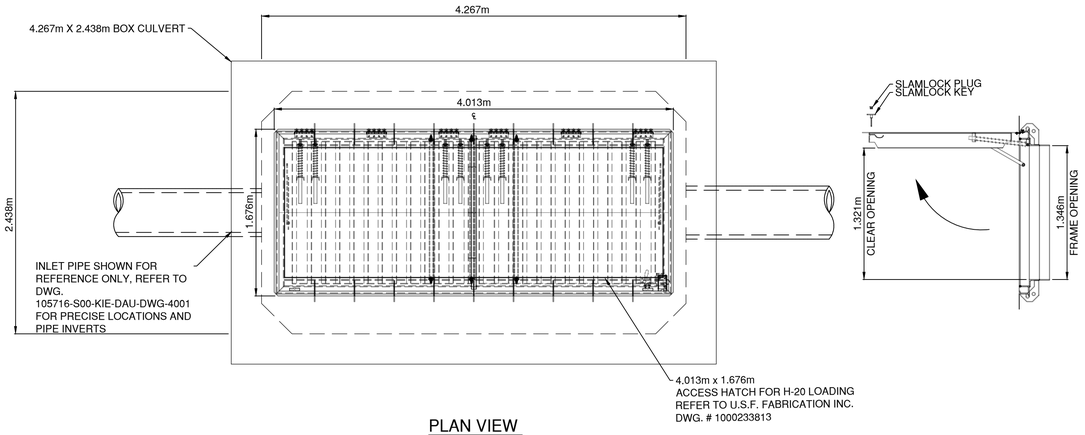
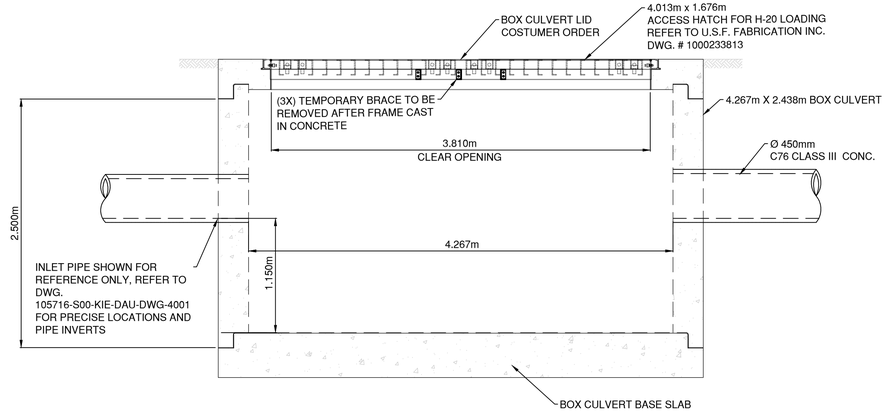
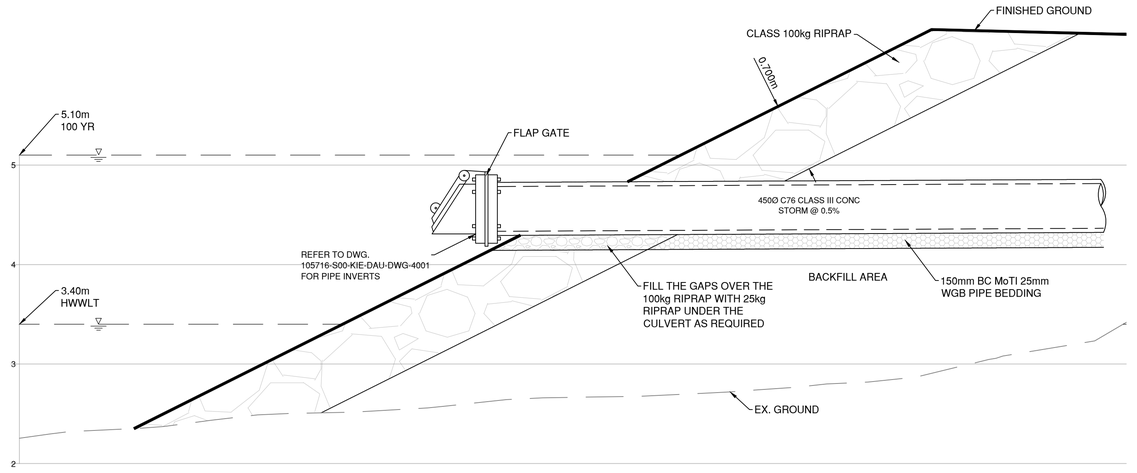


PLAN VIEW

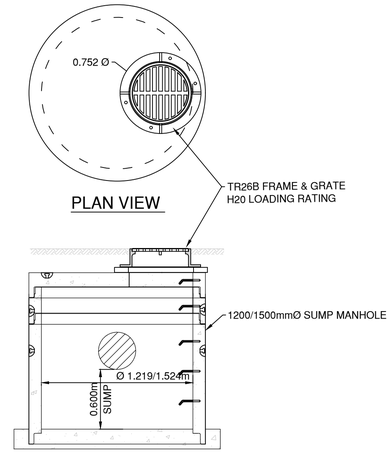


ELEVATION VIEW

SEDIMENT CHAMBER DETAILS



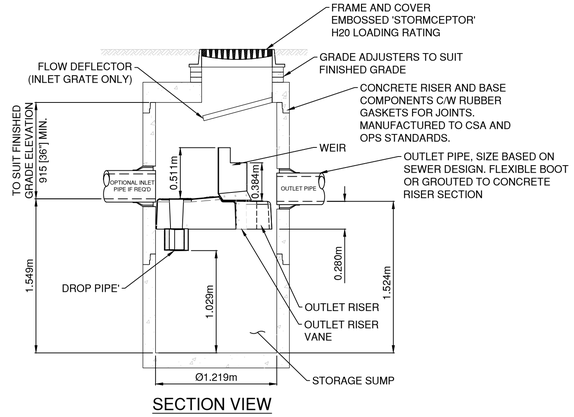
OUTFALL DETAILS



PLAN VIEW

ELEVATION VIEW

CATCH BASIN MANHOLE DETAILS



SECTION VIEW

STORMCEPTOR DETAILS

NOTES:

1. ALL HARDWARE SUCH AS NUTS, BOLTS, TIE RODS, ETC. ARE TO BE 316 STAINLESS STEEL. COAT ALL MECHANICAL HARDWARE WITH PRIMER AND PETROLATUM TAPE TO AWWA C217.

PRELIMINARY
NOT FOR CONSTRUCTION
2024–MAR–01

VFPA DRAWING NUMBER: **332-004-UT-###**

Ref. No.	REFERENCE

Kiewit

No.	Date	REVISION	Dr'n	Ch'd
E	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
D	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
C	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.
B	2023-SEP-27	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-AUG-23	ISSUED FOR 50%	T.W.	B.Y.

PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

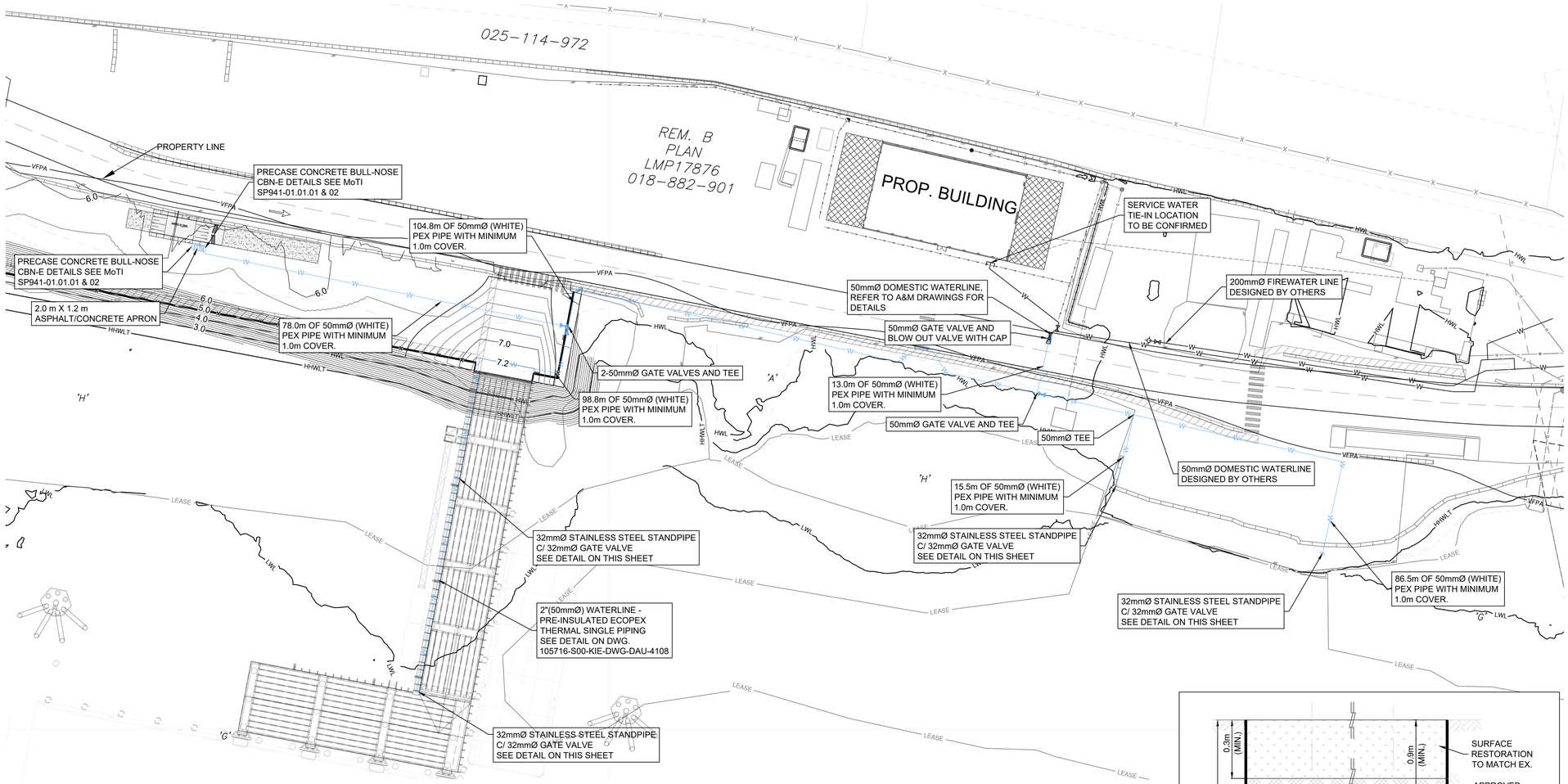
DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	1:30
VFPA SITE	332-004

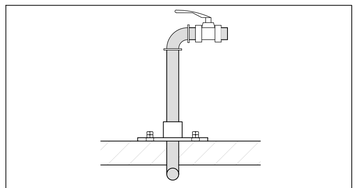
WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
STORM DETAILS

SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4102	1 OF 1	E

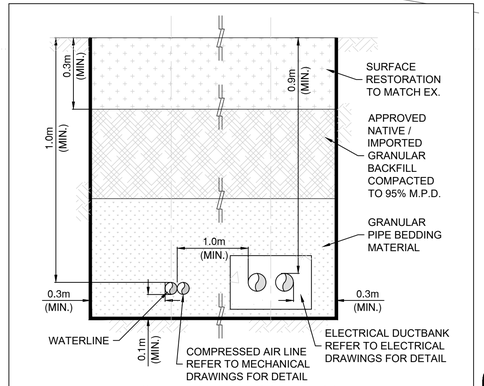
TITLE BLOCK: DL-TB.dwg

DATE: 2024/03/21 - 1:28pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIVCAD\Sheets\105716-S00-KIE-DAU-DWG-4102.dwg





32mmØ STAINLESS STEEL STANDPIPE
C/ 32mmØ GATE VALVE
N.T.S.



50mmØ WATERLINE & COMPRESSED AIR LINE
& ELECTRICAL DUCTBANK
COMMON TRENCH DETAIL
N.T.S.

WATERMAIN NOTES:

1. CONSTRUCTION WORKS SHALL CONFORM TO THE MASTER MUNICIPAL CONSTRUCTION DOCUMENT AND STANDARD DETAIL DRAWINGS (MMCD), PLATINUM EDITION (2019) SECTION 33 11 01 WATERWORKS.
2. MINIMUM 1.0m COVER FOR ALL WATERWORKS.
3. MINIMUM OF 1.0m HORIZONTAL CLEARANCE AND 300mm CLEAR VERTICAL SEPARATION BETWEEN WATERMAINS AND ELECTRICAL/ COMMUNICATION CONDUITS EXCEPT WHERE NOTED.
4. DISINFECTION AND FLUSHING PROCEDURES SHALL BE IN ACCORDANCE WITH MMCD SECTION 33 11 01, 3.21.
5. THE CONTRACTOR SHALL CONFIRM LOCATION AND ELEVATION OF EXISTING UTILITIES AT ALL CROSSINGS AND CONNECTIONS PRIOR TO CONSTRUCTION
6. ALL 50mm WATERLINES MATERIAL TO BE UPONOR PEX WHITE OR EQUIVALENT.
7. ALL PEX FITTINGS SHALL BE ProPEX ENGINEERED POLYMER (EP) TO ASTM F2023 AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. (OR EQUIVALENT)
8. ALL PEX JOINTS SHALL BE ProPEX RINGS AND ProPEX TOOL IS REQUIRED. (OR EQUIVALEN)
9. ALL PEX JOINTS SHALL BE WRAPPED WITH DENSO PETROLATUM TAPE.

PRELIMINARY
NOT FOR CONSTRUCTION
2023-SEP-27

VFPA DRAWING NUMBER:
332-004-UT-4003

Ref. No.	REFERENCE

No.	Date	REVISION	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VRPA PER	T.W.	B.Y.
B	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.
A	2023-AUG-23	ISSUED FOR 50%	T.W.	B.Y.

Kiewit

PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	1:500
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
WATERLINE PLAN, DETAILS AND NOTES

SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4003	1 OF 1	C

DATE: 2024/03/17, 6:28pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 Civ\CAD\Sheets\105716-S00-KIE-DAU-DWG-4103.dwg

PLAN BCP10876
025-929-402

5
PLAN
BCP11268
025-944-231

6
PLAN BCP1
025-944-

7
PLAN
BCP11268
025-944-258

PLAN L
025-

EX.PLAN 82056

REF PLAN 82059

025-114-972

EX. DITCH PROTECTED
WITH EROSION
CONTROL SOCKS

PROPERTY LINE

EX. DITCH PROTECTED
WITH EROSION
CONTROL SOCKS

28.3m-375mmØ SDR 35 PVC
@ 1.8% STM

39.0m-375mmØ SDR 35 PVC
@ 0.6% STM

CB MH D15

TRUCK SCALE

CB MH D16

CB MH D8

EX. CB

22.1m-450mmØ C76 CL IV CONC
@ 0.5% STM

EX. 600mmØ STEEL PIPE
FOR GROUND WATER
SEEPAGE CONTROL

CB MH D1

33.8m-375mmØ C76 CL IV CONC
@ 0.5% STM

SILT CONTROL CHAMBER
SEE DETAIL ON DWG.
104040-S00-KIE-DWG-DAU-4102

STORMCEPTOR
SEE DETAIL ON DWG.
104040-S00-KIE-DWG-DAU-4102

MH D14

2.1m-450mmØ SDR 35 PVC
@ 0.5% STM

EX. 600Ø STEEL STM

SILT CONTROL CHAMBER
SEE DETAIL ON DWG.
105716-S00-KIE-DWG-DAU-4002

9.0m-375mmØ SDR 35 PVC
@ 0.5% STM

STORMCEPTOR
SEE DETAIL ON DWG.
105716-S00-KIE-DWG-DAU-4102

CATCHMENT A2
3,782 m²

CB MH D3

WHEEL WASH, REFER TO
CITY OF COQUITLAM DETAIL
DRAWING ES-EC-3

100mmØ HDPE
OUTLET PIPE

40.0m-200mmØ CPVC
@ 0.5% STM

CATCHMENT A1
278.0 m²

24.5m-450mmØ C76 CL III CONC
@ 0.5% STM

9.6m-375mmØ SDR 35 PVC
@ 0.5% STM

1.8m-450mmØ SDR 35 PVC
@ 0.5% STM

26.9m-375mmØ C76 CL IV CONC
@ 0.5% STM

CB MH D6

CB MH D4

CB MH D7

32.8m-375mmØ SDR 35 PVC
@ 0.5% STM

26.0m-375mmØ C76 CL IV CONC
@ 0.5% STM

CB MH D5

450mmØ CONC. PIPE
WITH FLAP GATE
N 5452296.5744
E 511227.5818

31.7m-600mmØ C76 CL III CONC
@ 0.5% STM

12.5m-450mmØ C76 CL III CONC
@ 0.5% STM

17.8m-250mmØ
C76 CL III CONC
@ 5.8% STM

STORMCEPTOR
SEE DETAIL ON DWG.
105716-S00-KIE-DWG-DAU-4102

CB MH D9

CB MH D10

450mmØ CONC. PIPE
WITH FLAP GATE

13.2m-200mmØ CPVC
@ 0.5% STM

13.2m-200mmØ CPVC
@ 0.5% STM

CATCHMENT A3
1,376 m²

'A' 'B' 'C' 'D' 'E' 'F' 'G' 'H'

LEASE

VFPA

HHWLT

HWL

LWL

VE SAFETY CHANNEL

LEGEND

- EXISTING DITCH
- EXISTING STORM
- PROPOSED STORM
- CATCHMENT AREA
- EXISTING OVERLAND FLOW
- PROPOSED OVERLAND FLOW

INFORMATION ONLY

VFPA DRAWING NUMBER:
332-004-UT-###

No.	Date	REVISION	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
B	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No. REFERENCE

Kiewit

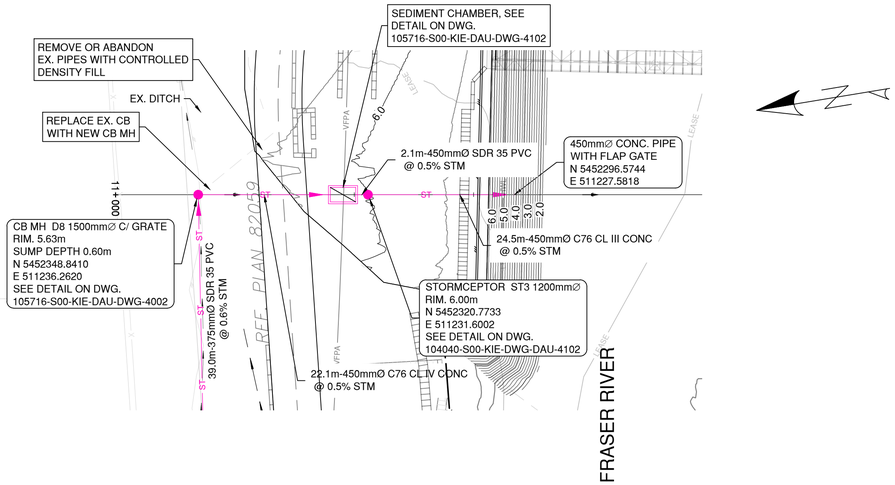
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

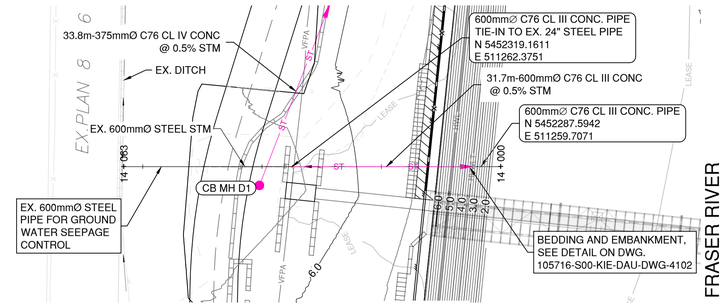
DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	1:600
VFPA SITE	332-004

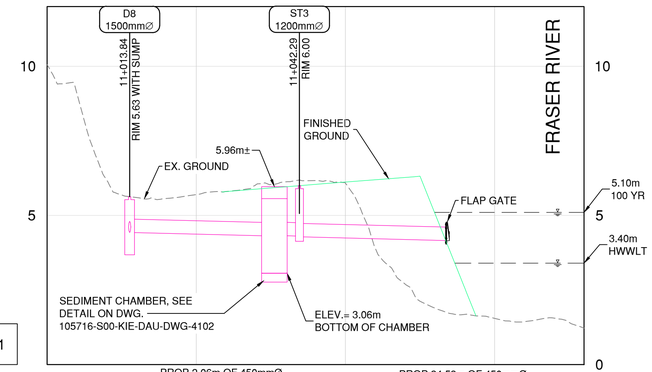
WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
STORMWATER MANAGEMENT PLAN

SIZE D | DWG. 105716-S00-KIE-DAU-DWG-4104 | SHEET 1 OF 1 | REV. C

DATE: 2024/03/18 - 3:35pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIVICAD\Sheets\105716-S00-KIE-DAU-DWG-4104.dwg

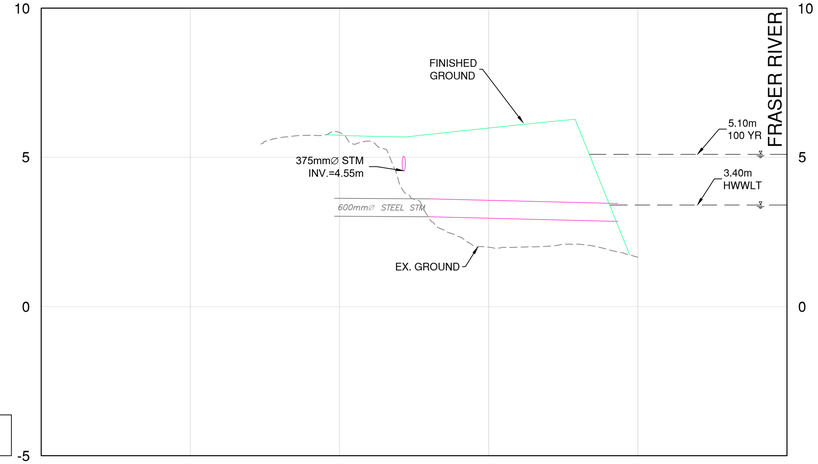






ALIGNMENT: MY STM 1

STORM TYPE, SIZE LENGTH AND GRADE		PROP 22.12m OF 450mmØ C76 CLASS IV CONC @ 0.5%			PROP 2.06m OF 450mmØ SDR35 PVC @ 0.5%	PROP 24.53m OF 450mmØ C76 CLASS III CONC @ 0.5%		
STORM SEWER INVERT ELEVATIONS		4.43 (S) 4.43 (W)	4.32 (N)	4.32 (S)	4.31 (N) 4.28 (S)	4.16 (N)		
GROUND ELEVATION	10.06	5.70	6.08	6.12	1.55	1.22		
CHAINAGE	11+000	**11+013.84**	11+025	**11+035.96**	**11+040.23** **11+042.29**	11+050	**11+066.82**	11+075	11+090



ALIGNMENT: MY STM 4

STORM TYPE, SIZE LENGTH AND GRADE			PROP 31.68m OF 600mmØ C76 CLASS III CONC @ 0.5%		
STORM SEWER INVERT ELEVATIONS			3.01 (N) 3.01 (S)	2.85 (N)	
GROUND ELEVATION	5.84	5.74	1.99	5.98	1.65
CHAINAGE	**14+050.83**		**14+035**	**14+003.32**	

PRELIMINARY
NOT FOR CONSTRUCTION
2024–MAR–01

VFPA DRAWING NUMBER:
332-004-UT-###

No.	Date	REVISION	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
B	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No. REFERENCE

Kiewit

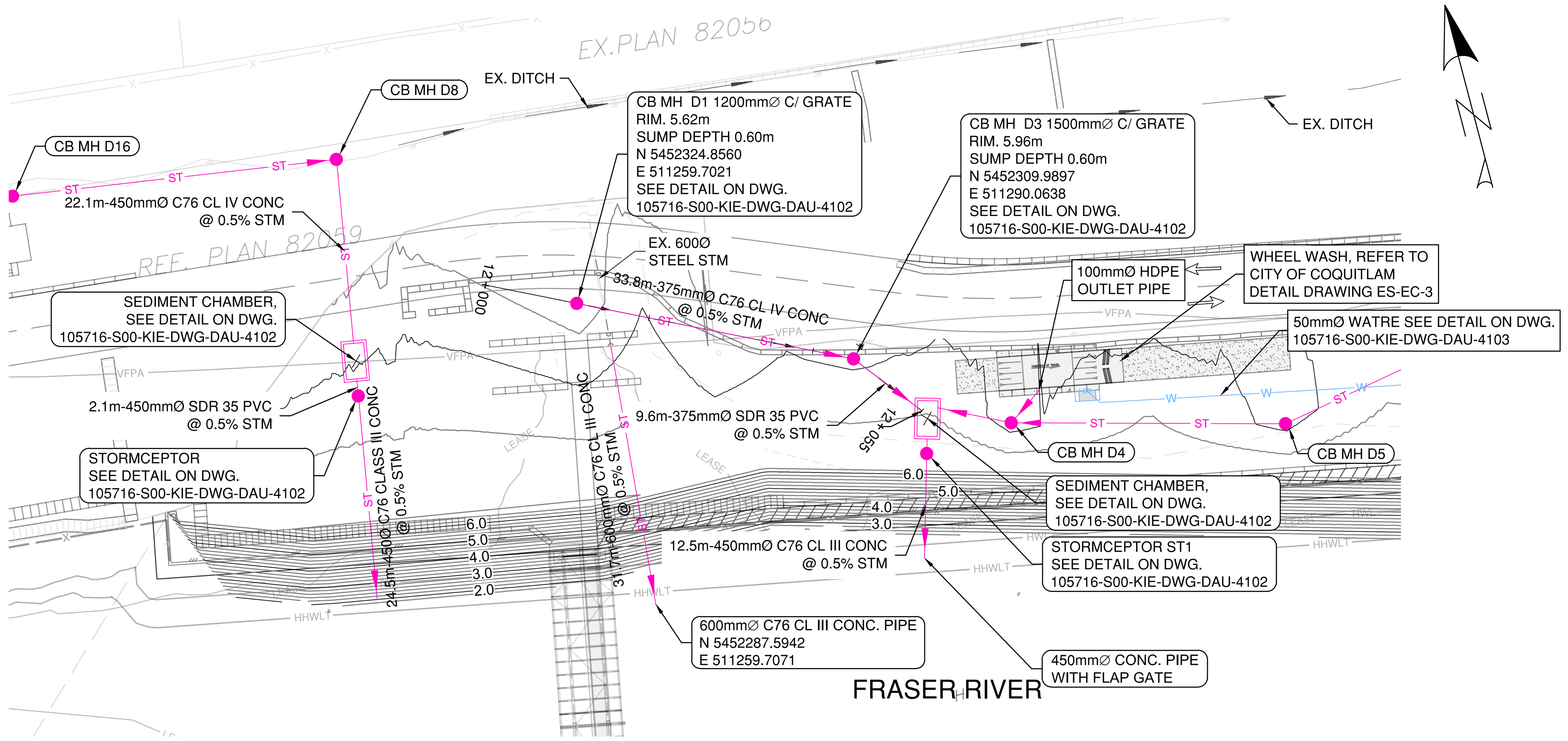
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

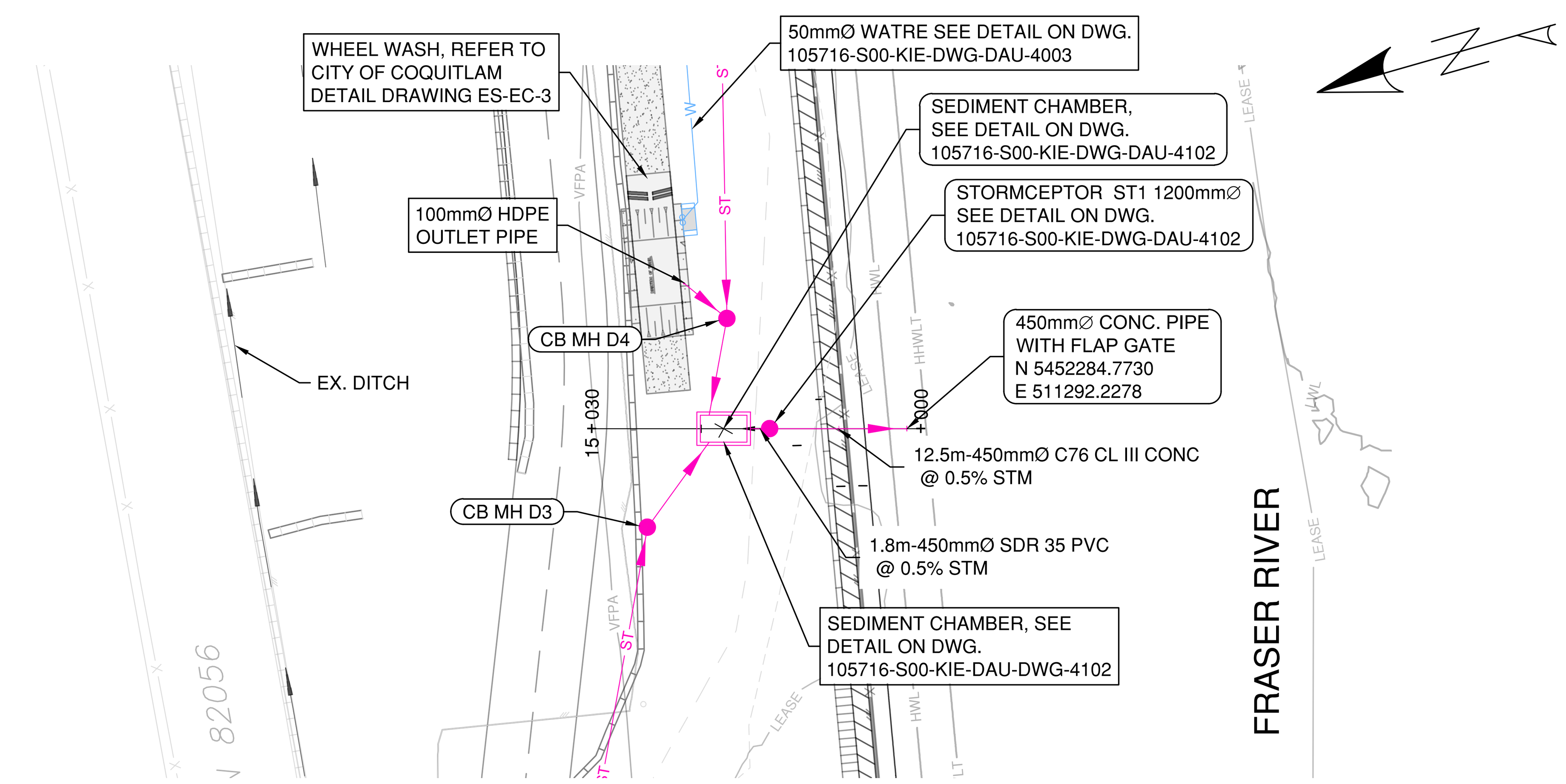
DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

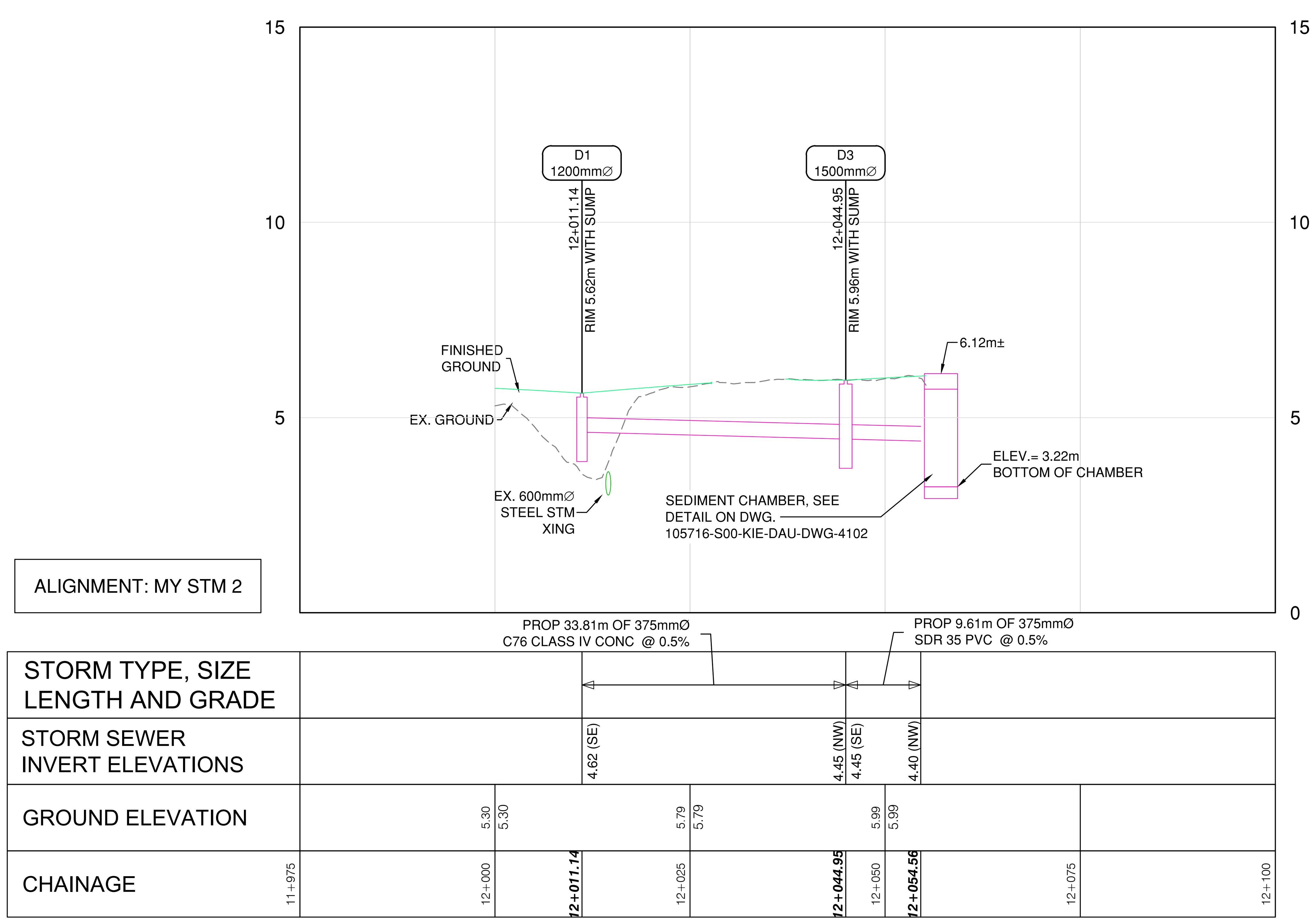
WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
STORM PLAN AND PROFILE
SHEET 1 OF 3

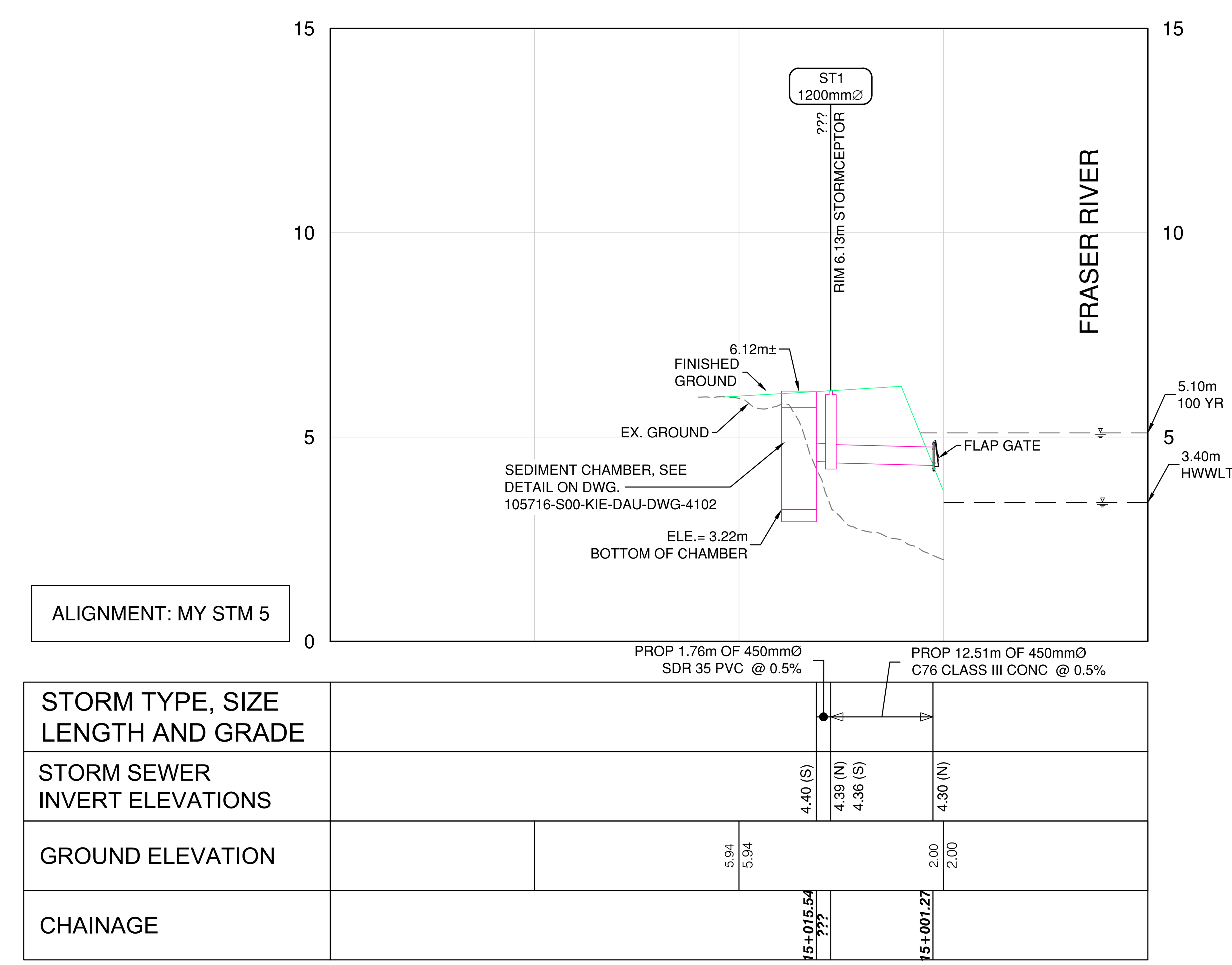
SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4105	1 OF 3	C

DATE: 2024/03/18, 3:51pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIVCAD\Sheets\105716-S00-KIE-DAU-DWG-4105.dwg









PRELIMINARY
NOT FOR CONSTRUCTION
2024–MAR–01

VFPA DRAWING NUMBER: 332-004-UT-###

No.	Date	Revision	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
B	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No. | REFERENCE

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PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
STORM PLAN AND PROFILE
SHEET 2 OF 3

SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4106	2 OF 3	C

DATE: 2024/03/18 - 3:44pm
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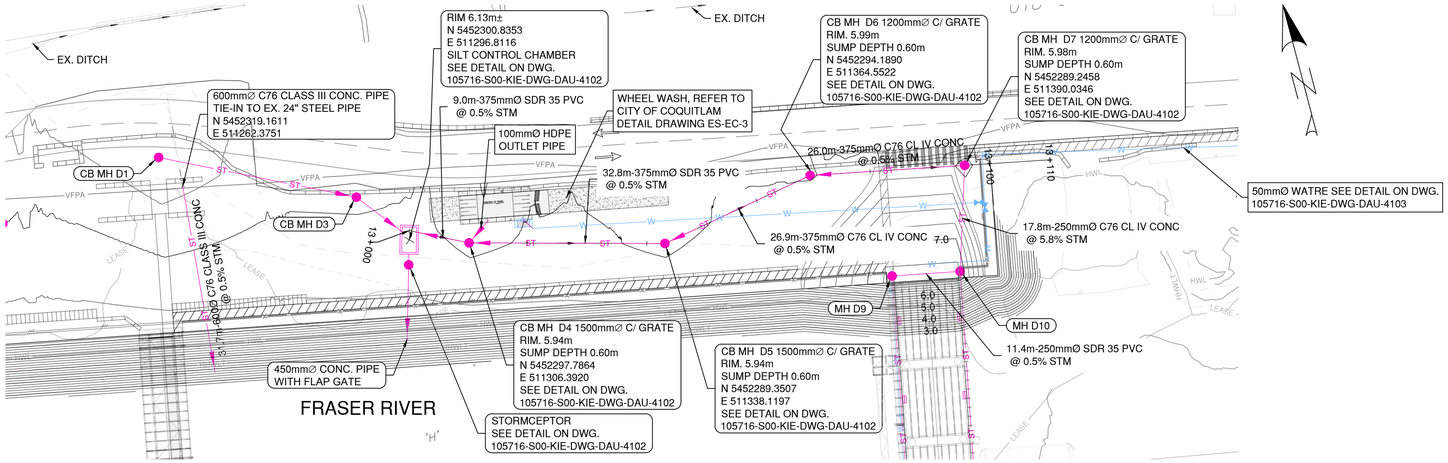
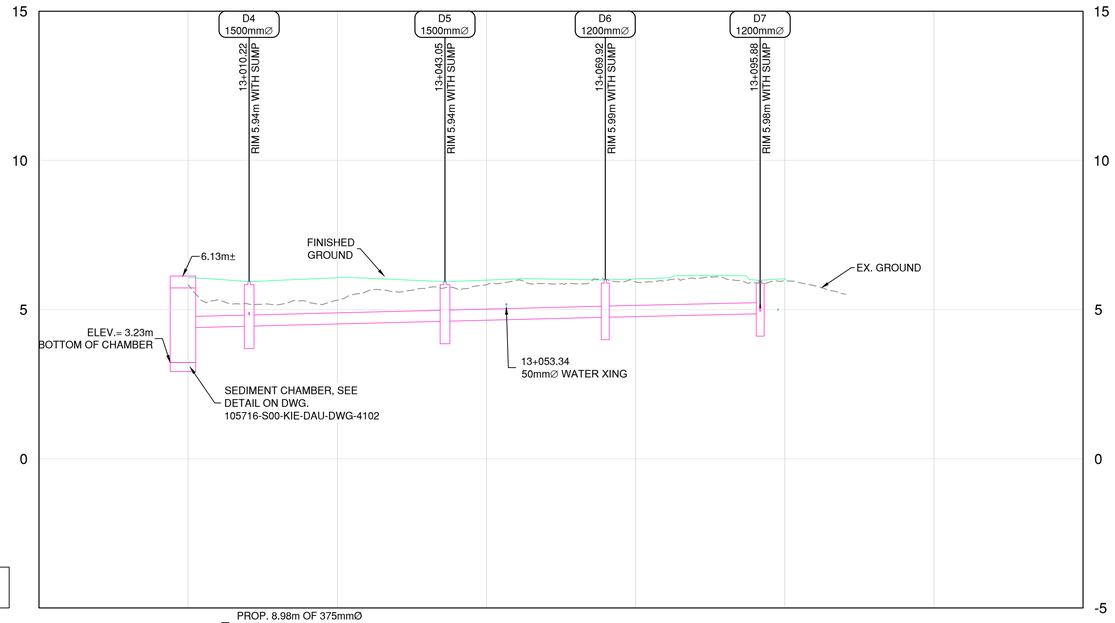




ALIGNMENT: MY STM 3

STORM TYPE, SIZE LENGTH AND GRADE		PROP. 8.98m OF 375mmØ C76 CL III PVC @ 0.5%	PROP. 32.83m OF 375mmØ C76 CL III PVC @ 0.5%	PROP. 26.87m OF 375mmØ C76 CL III CONC @ 0.5%	PROP. 25.96m OF 375mmØ C76 CL III CONC @ 0.5%		
STORM SEWER INVERT ELEVATIONS		4.40 (SE)	4.44 (NW) 4.44 (E) 4.82 (NE)	4.61 (W) 4.61 (E)	4.74 (W) 4.74 (E)	4.86 (W) 4.94 (S)	
GROUND ELEVATION	12+975	5.83 6.06	5.32 6.07	5.83 5.99	5.93 6.03	5.97 6.03	
CHAINAGE	12+975	13+000 **13+001.24**	**13+010.22** 13+025	**13+043.05** 13+050	**13+069.92** 13+075	**13+095.88** 13+100	13+125 13+150

PRELIMINARY
NOT FOR CONSTRUCTION
2024–MAR–01

VFPA DRAWING NUMBER:
332-004-UT-###

Ref. No.	REFERENCE

Kiewit

No.	Date	REVISION	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
B	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

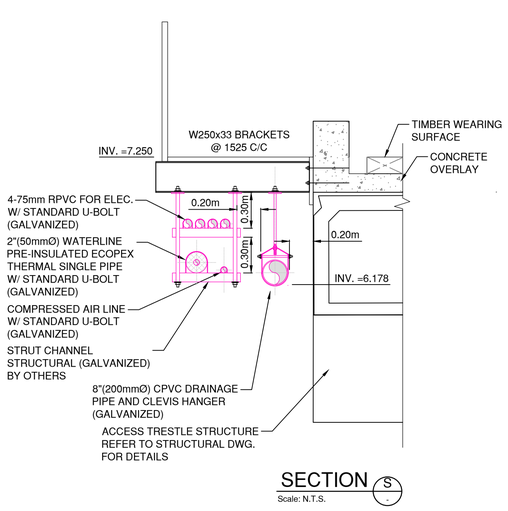
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
STORM PLAN AND PROFILE
SHEET 3 OF 3

SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4107	3 OF 3	C

DATE: 2024/03/21 - 2:03pm
PATH: C:\Users\ShunPa.Wang\DCIACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIV\CADSheets\105716-S00-KIE-DAU-DWG-4107.dwg



SECTION S
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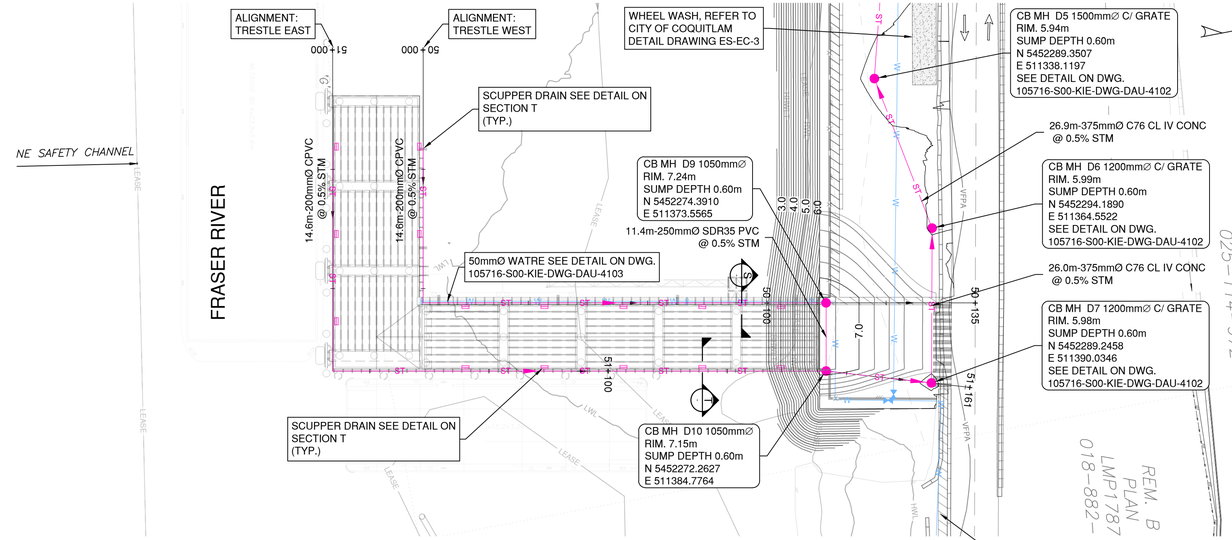
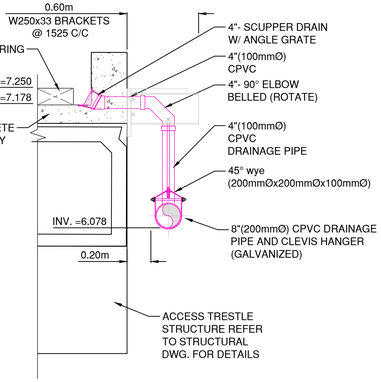
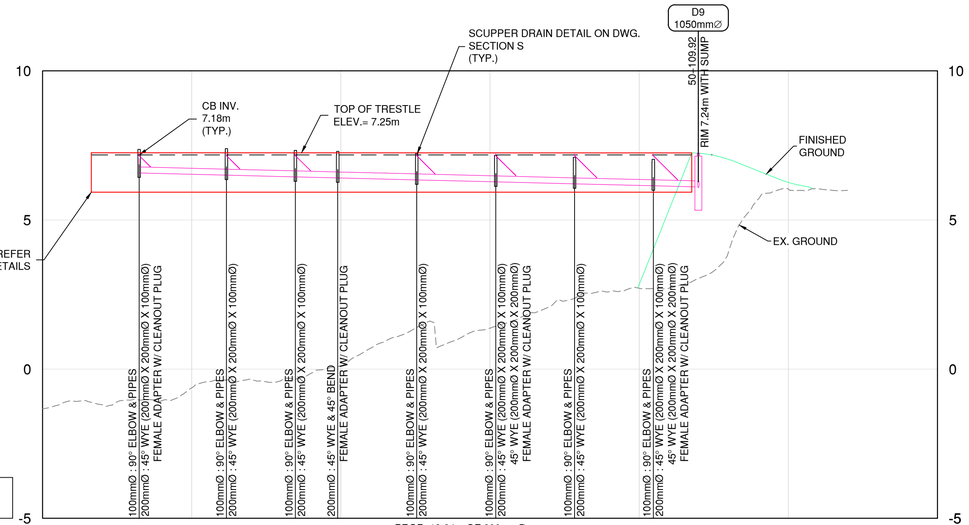
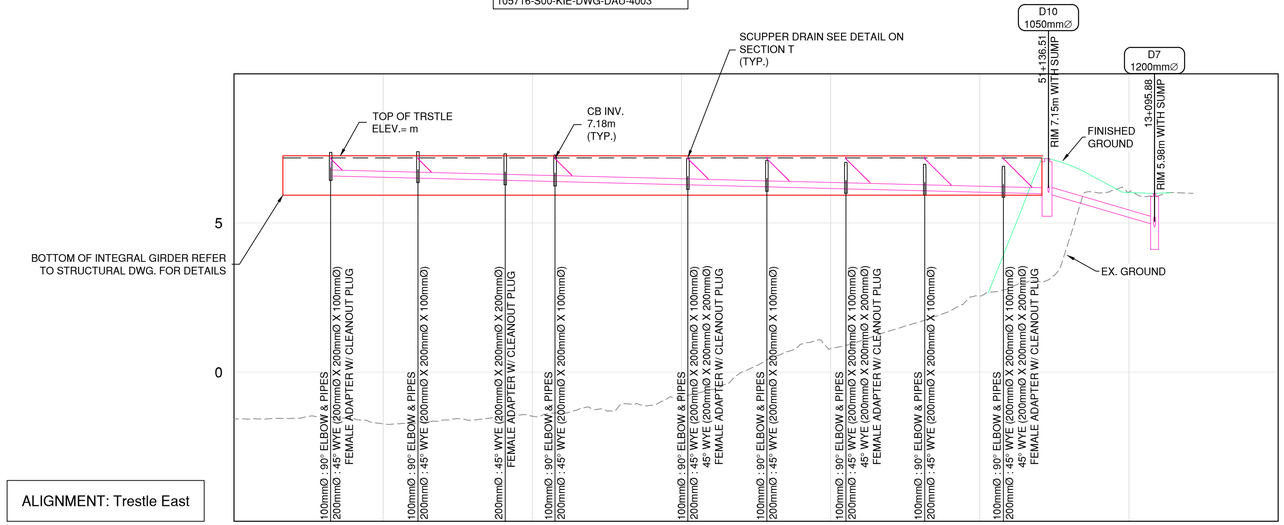


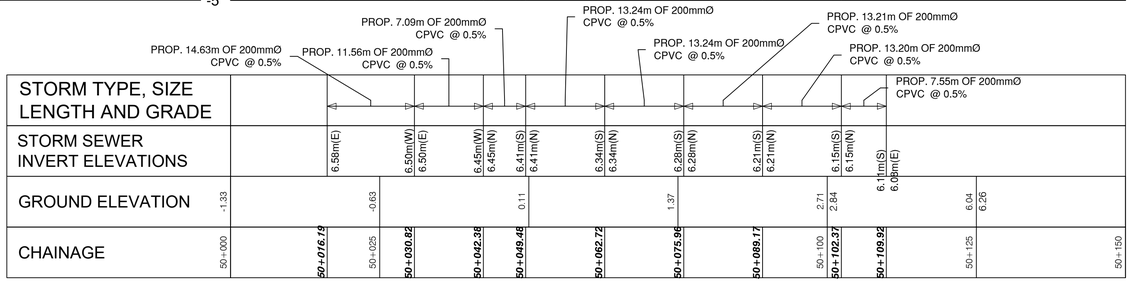


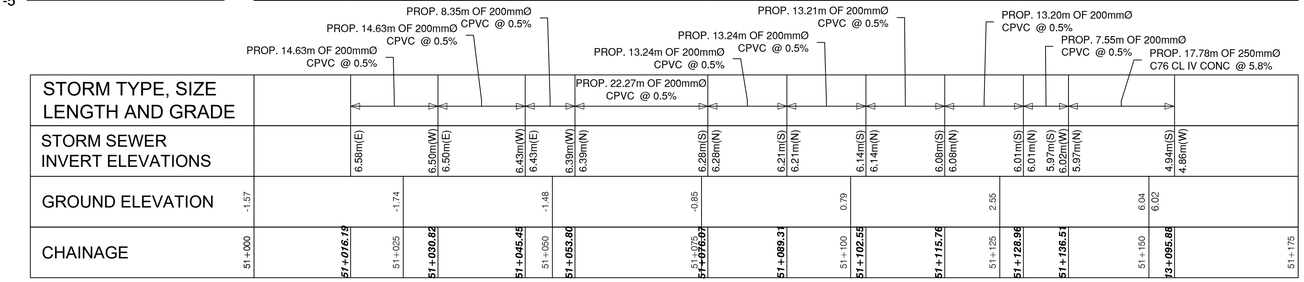
SECTION T
Scale: N.T.S.

PRELIMINARY
NOT FOR CONSTRUCTION
2023–NOV–14









VFPA DRAWING NUMBER:
332-004-UT-###

No.	Date	REVISION	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VFP PER	T.W.	B.Y.
B	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No. | REFERENCE

Kiewit

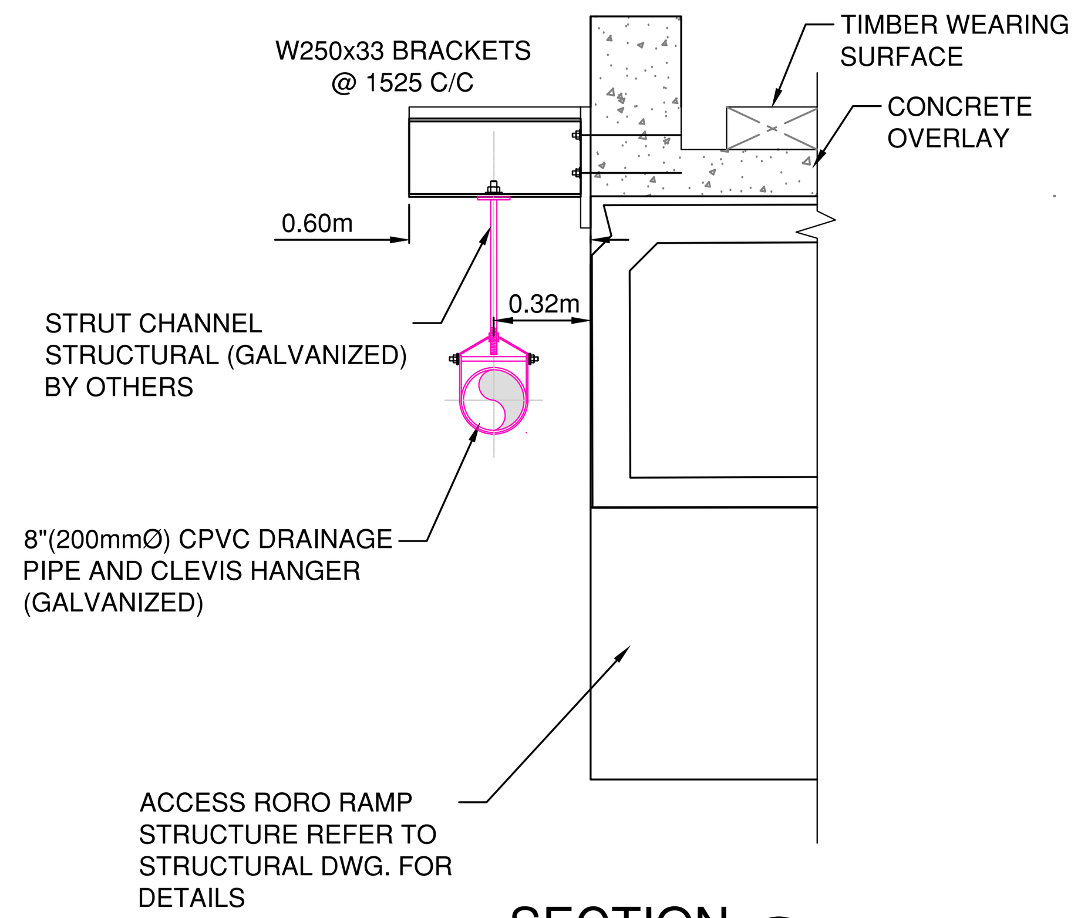
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-01
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

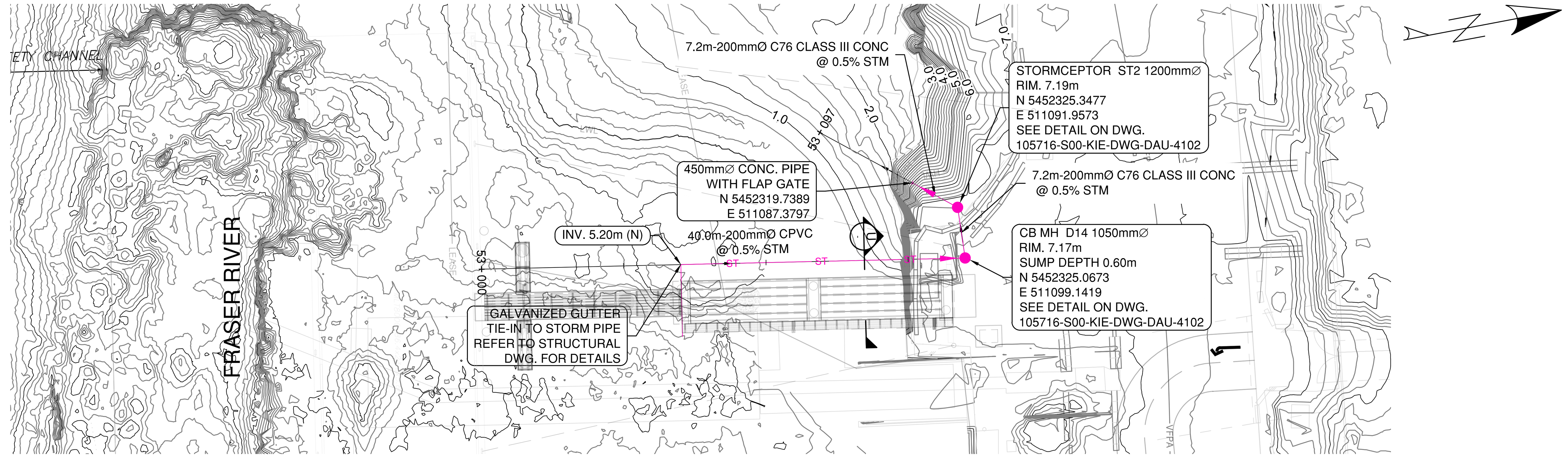
WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
TRESTLE DRAINAGE PLAN AND PROFILE
.

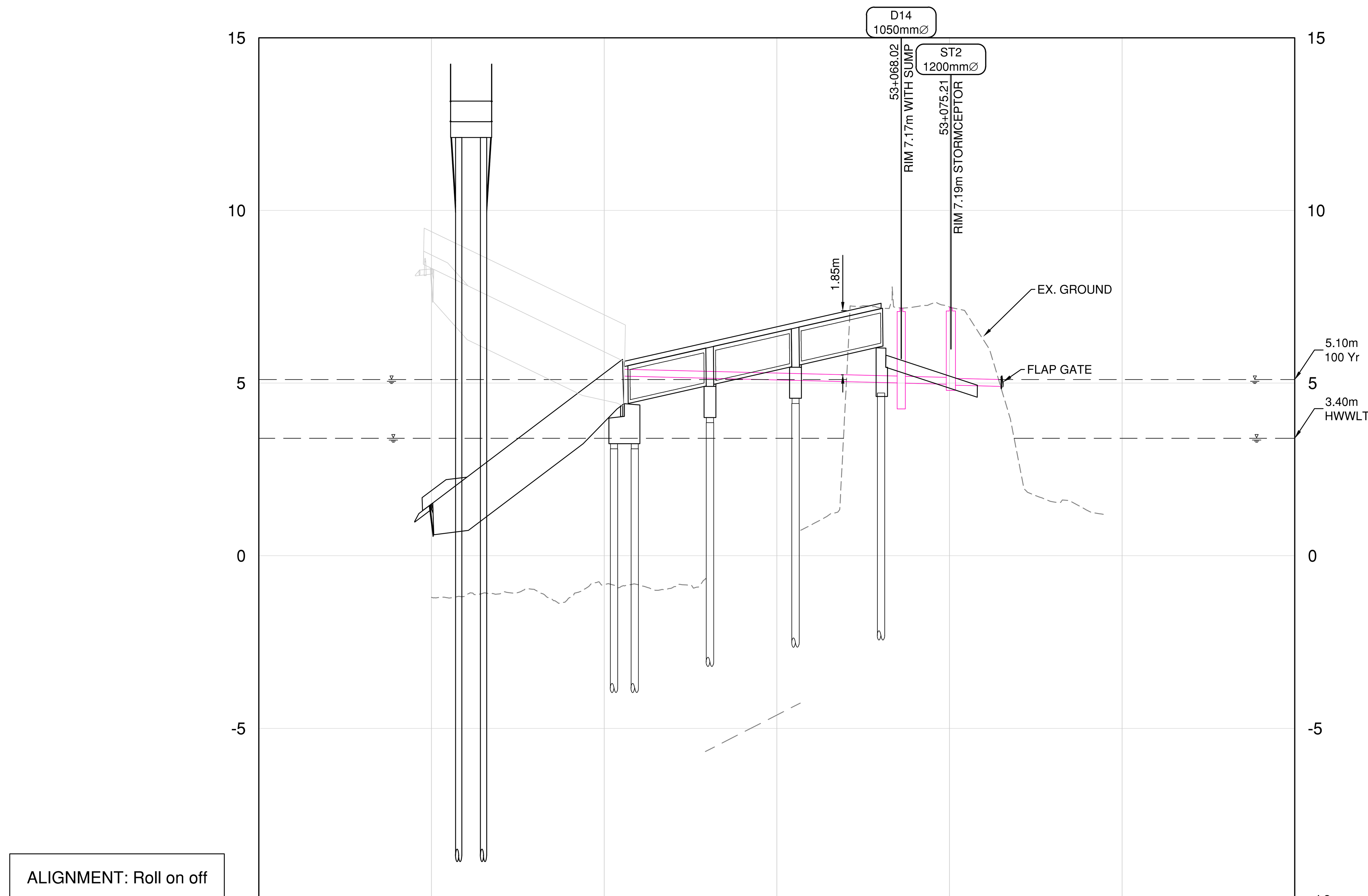
SIZE D | DWG. **105716-S00-KIE-DAU-DWG-4108** | SHEET **1 OF 1** | REV. **C**

DATE: 2024/03/17, 8:35pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIV\CAD\Sheets\105716-S00-KIE-DAU-DWG-4108.dwg



SECTION U
Scale: N.T.S.





STORM TYPE, SIZE LENGTH AND GRADE				PROP. 40.00m OF 200mmØ CPVC @ 0.5%			PROP. 7.19m OF 200mmØ C76 CLASS III CONC @ 0.5%	PROP. 7.24m OF 200mmØ C76 CLASS III CONC @ 0.5%		
STORM SEWER INVERT ELEVATIONS				5.20m(N)		5.00m(S) 5.00m(W)	4.96m(E) 4.94m(SW)	4.90m(NE)		
GROUND ELEVATION		-1.21 -1.21	-0.84 -0.84				7.20 7.20			
CHAINAGE	52+975	53+000	53+025	53+028.02	53+050	53+068.02	53+075.21	53+082.45	53+100	53+125

PRELIMINARY
NOT FOR CONSTRUCTION
2024-MAR-01

VFPA DRAWING NUMBER: 332-004-UT-###

No.	Date	REVISION	Dr'n	Ch'd
C	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
B	2024-MAR-01	ISSUED FOR DFO FISHERIES ACT AUTHORIZATION REVIEW	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No.	REFERENCE

Kiewit

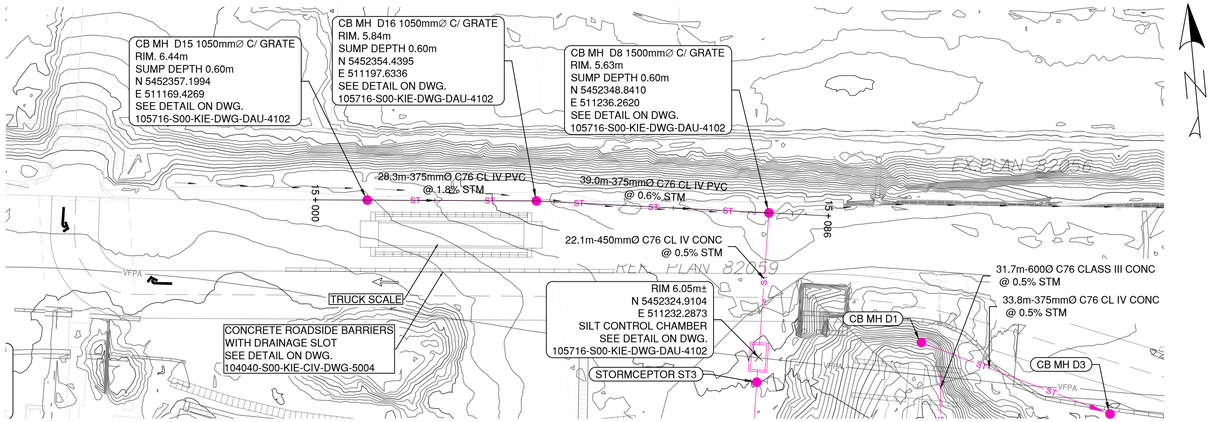
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

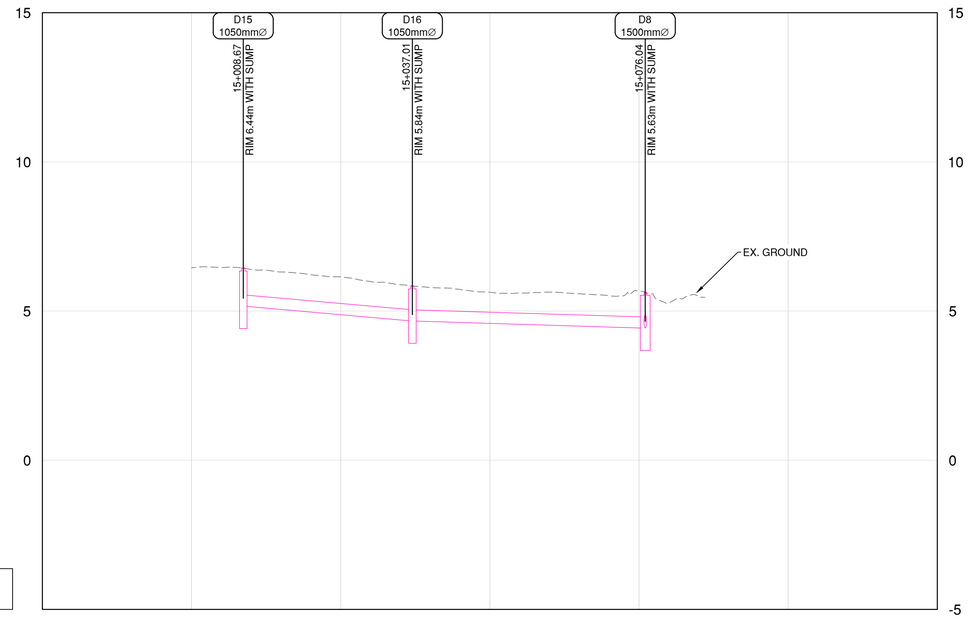
DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
RORO RAMP DRAINAGE PLAN AND PROFILE

SIZE: D | DWG.: 105716-S00-KIE-DAU-DWG-4109 | SHEET: 1 OF 1 | REV.: C

DATE: 2024/03/17 - 8:28pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIV\CAD\Sheets\105716-S00-KIE-DAU-DWG-4109.dwg





ALIGNMENT: MY STM 6

STORM TYPE, SIZE LENGTH AND GRADE			PROP. 28.34m OF 375mmØ SDR35 PVC @ 1.8%		PROP. 39.03m OF 375mmØ SDR35 PVC @ 0.6%				
STORM SEWER INVERT ELEVATIONS			5.17m(E)		4.67m(W) 4.67m(E)		4.43m(W) 4.43m(S)		
GROUND ELEVATION									
CHAINAGE	14+975	15+000	**15+008.67**	15+025	**15+037.01**	15+050	15+075 **15+076.04**	15+100	15+125

PRELIMINARY
NOT FOR CONSTRUCTION
2024–MAR–01

VFPA DRAWING NUMBER:
332-004-UT-###

No.	Date	REVISION	Dr'n	Ch'd
A	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.

Ref. No. REFERENCE

Kiewit

PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
TRUCK SCALE DRAINAGE PLAN AND PROFILE
.

SIZE **D** | DWG. **105716-S00-KIE-DAU-DWG-4110** | SHEET **1 OF 1** | REV. **A**

DATE: 2024/03/21, 2:39pm
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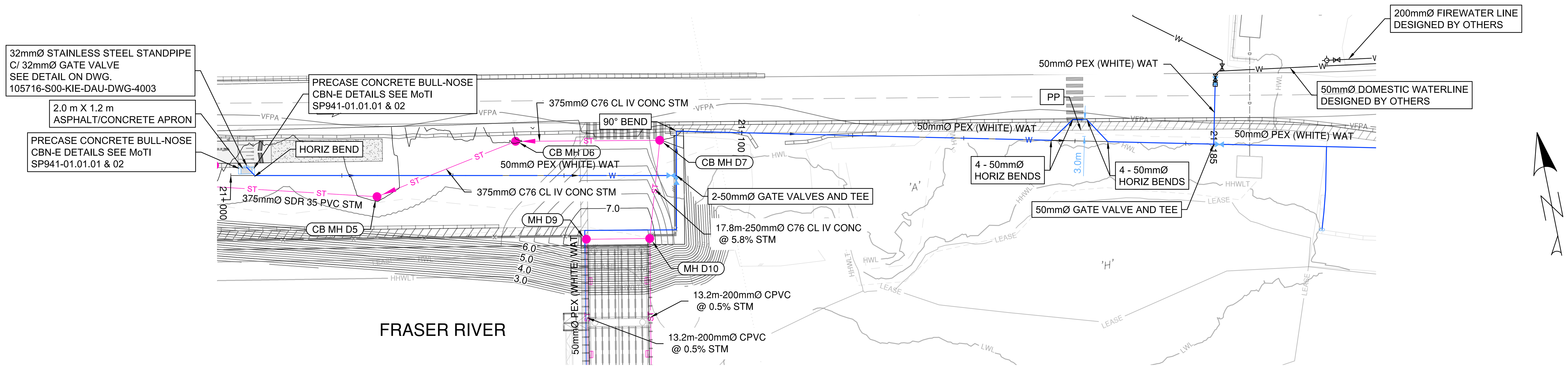
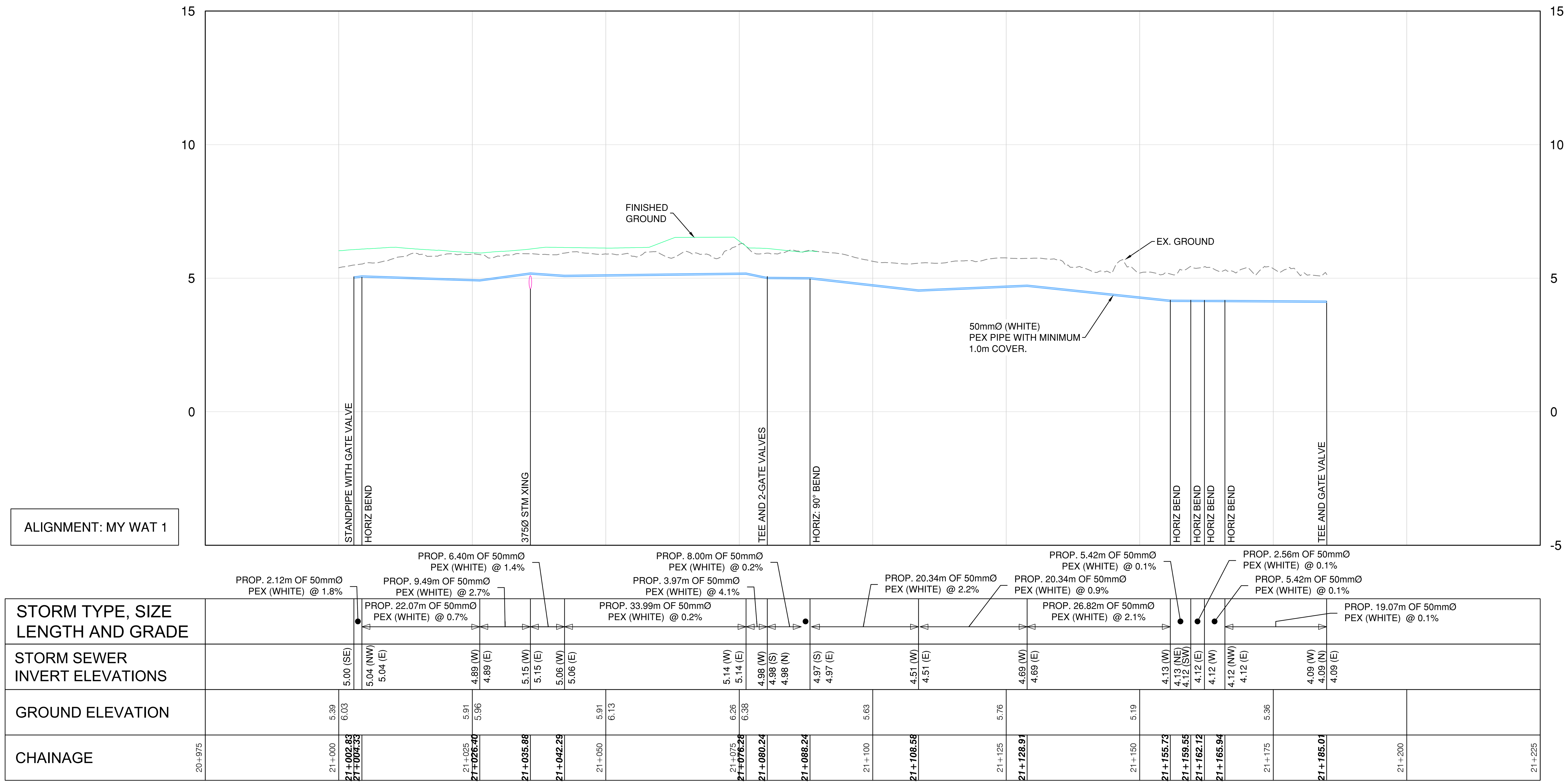




PRELIMINARY
NOT FOR CONSTRUCTION
2023–NOV–14

VFPA DRAWING NUMBER: 332-004-UT-4201

No.	Date	Revision	Dr'n	Ch'd
B	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No. | REFERENCE

Kiewit

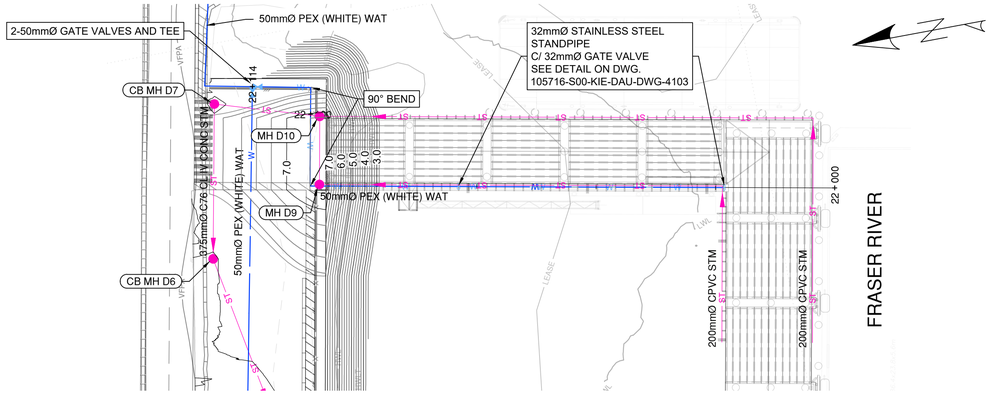
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

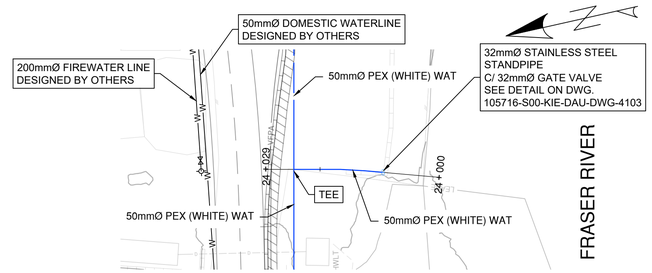
DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

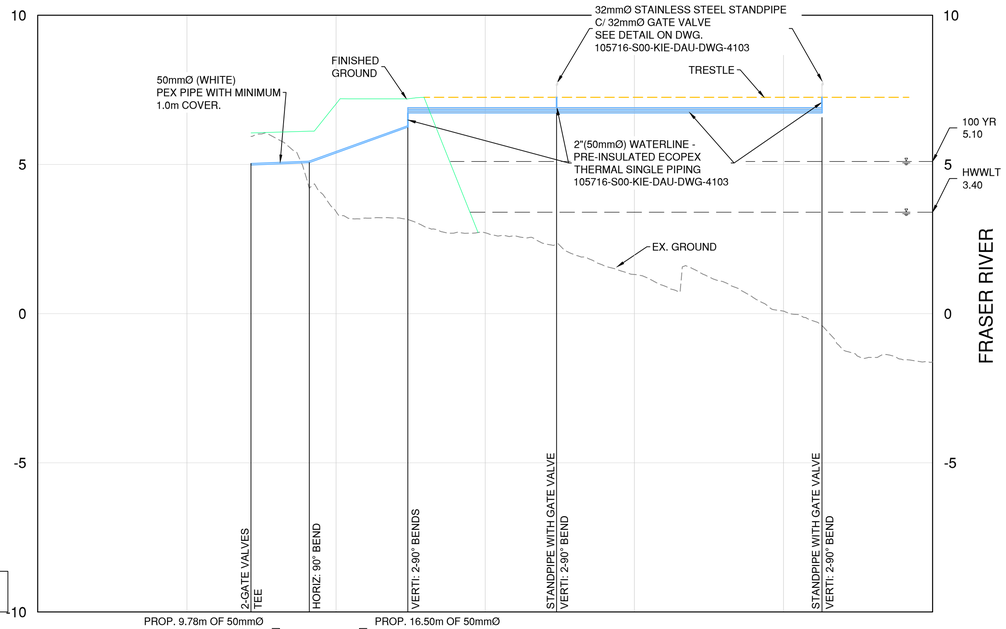
WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
WATERLINE PLAN AND PROFILE
SHEET 1 OF 3

SIZE: D | DWG.: **105716-S00-KIE-DAU-DWG-4201** | SHEET: 1 OF 3 | REV.: B

DATE: 2024/03/17 - 8:19pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIVCAD\Sheets\105716-S00-KIE-DAU-DWG-4201.dwg

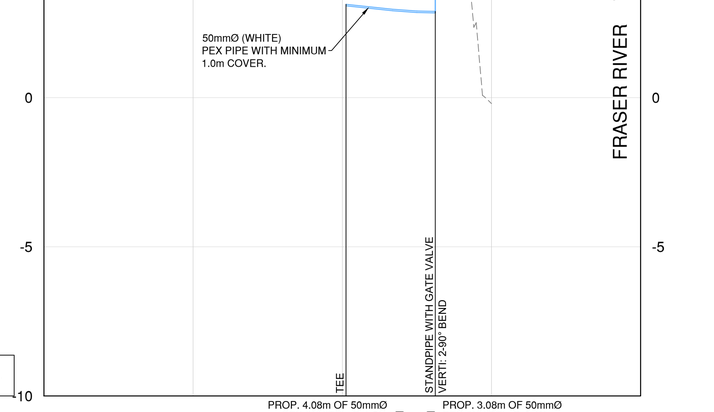






ALIGNMENT: MY WAT 2

WATER TYPE, SIZE LENGTH AND GRADE		PROP. 9.78m OF 50mmØ PEX (WHITE) @ 0.8%		PROP. 16.50m OF 50mmØ PEX (WHITE) @ 7.2%		PROP. 24.94m OF 50mmØ PEX (WHITE) @ 0.0%		PROP. 44.48m OF 50mmØ PEX (WHITE) @ 0.0%		
WATER SEWER INVERT ELEVATIONS		4.98 (N) 4.98 (W) 4.98 (S)	5.06 (N) 5.06 (W)		6.25 (E) 6.79 (S)		6.79 (S) 6.79 (N)		6.79 (N)	
GROUND ELEVATION			3.42 3.42		2.71 2.71		1.31 1.31	0.08 0.08		-1.62 -1.62
CHAINAGE	22+150	22+125	**22+114.26**	**22+104.47**	22+100	**22+087.97**	22+075	**22+063.03**	22+050	22+025	**22+018.56**	22+000



ALIGNMENT: MY WAT 4

WATER TYPE, SIZE LENGTH AND GRADE		PROP. 7.82m OF 50mmØ PEX (WHITE) @ 2.1%			PROP. 4.08m OF 50mmØ PEX (WHITE) @ 1.5%		PROP. 3.08m OF 50mmØ PEX (WHITE) @ 0.4%	
WATER SEWER INVERT ELEVATIONS		3.08 (E) 3.08 (W) 3.08 (S)	2.91 (N) 2.91 (S)	2.85 (N) 2.85 (S)	2.84 (N)			
GROUND ELEVATION			4.16			-0.20		
CHAINAGE	24+075	24+050	**24+024.39**	**24+016.57**	**24+012.50**	**24+009.42**	24+000	23+975

PRELIMINARY
NOT FOR CONSTRUCTION
2023–NOV–14

VFPA DRAWING NUMBER:
332-004-UT-###

Ref. No.	REFERENCE

Kiewit

No.	Date	REVISION	Dr'n	Ch'd
B	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

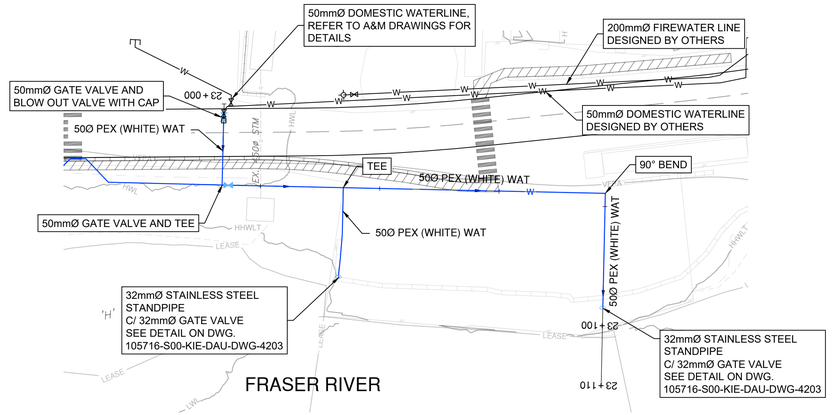
PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

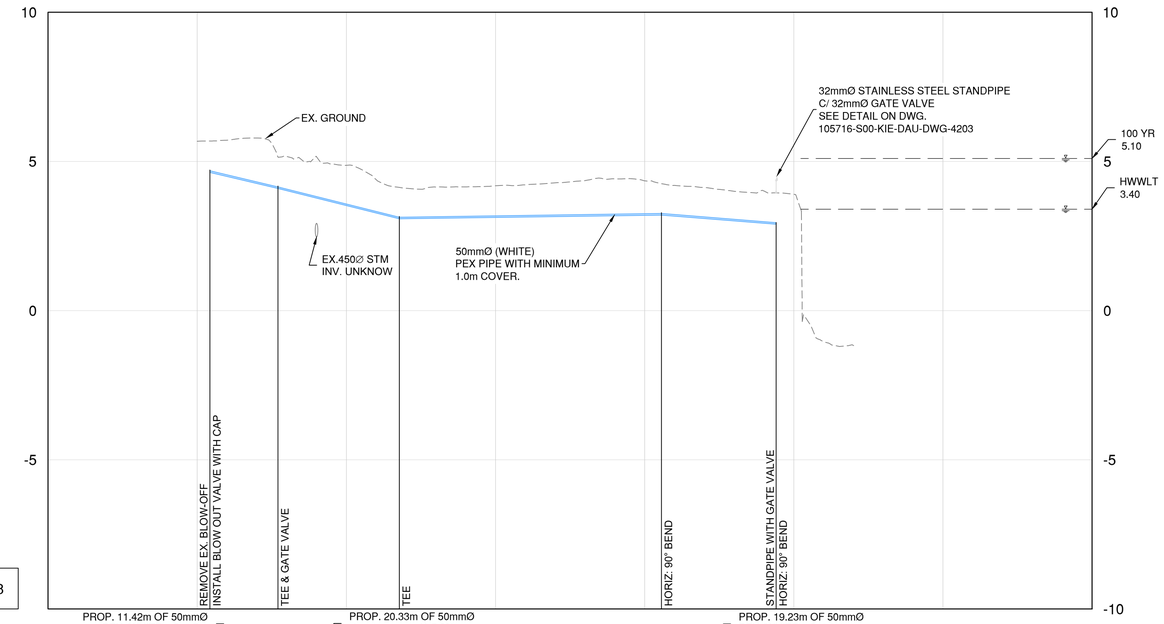
DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
WATERLINE PLAN AND PROFILE
SHEET 2 of 3

SIZE	DWG.	SHEET	REV.
D	105716-S00-KIE-DAU-DWG-4202	2 OF 3	B

DATE: 2024/03/17 8:21pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIVICAD\Sheets\\105716-S00-KIE-DAU-DWG-4202.dwg





PRELIMINARY
NOT FOR CONSTRUCTION
2023–NOV–14

VFPA DRAWING NUMBER: 332-004-UT-4203

No.	Date	REVISION	Dr'n	Ch'd
B	2024-MAR-29	ISSUED FOR VFPA PER	T.W.	B.Y.
A	2023-NOV-14	ISSUED FOR 90%	T.W.	B.Y.

Ref. No. | REFERENCE

Kiewit

PORT of vancouver
Vancouver Fraser Port Authority
ENGINEERING DEPARTMENT

DESIGN BY	B.Y.
DRAWN BY	T.W.
APPROVED	K.B.
DATE	2024-MAR-29
SCALE	H 1:500 V: 1:50
VFPA SITE	332-004

WCD MARINE YARD BUILD-OUT
COQUITLAM, BC
WATERLINE PLAN AND PROFILE
SHEET 3 OF 3

SIZE D | DWG. 105716-S00-KIE-DAU-DWG-4203 | SHEET 3 OF 3 | REV. B

DATE: 2024/03/17 - 8:23pm
PATH: C:\Users\ShunPa.Wang\DC\ACCDocs\Kiewit\WCD Marine Yard\Project Files\40 Design Eng\30 CIVICAD\Sheets\105716-S00-KIE-DAU-DWG-4203.dwg