PORT COQUITLAM TRANSIT STATION UPGRADE PROJECT ENVIRONMENTAL CONSTRAINTS REPORT

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JUNE 2024

MOTI11817
VERSION 2.0

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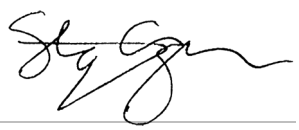
DISTRIBUTION LIST

The following individuals/firms have received this document:

Name	Firm	Hardcopies	Email	FTP
Virginia Dragan	Ministry of Transportation and Infrastructure	-	✓	-

AMENDMENT RECORD

This report has been issued and amended as follows:

Issue	Description	Date	Approved by	
1	First version of Port Coquitlam Transit Station Upgrade Project Environmental Constraints Report	20240515	Tim Poulton Project Director	Stephanie Cavaghan Project Manager
2	Second version of Port Coquitlam Transit Station Upgrade Project Environmental Constraints Report	20240618	 Tim Poulton Project Director	 Stephanie Cavaghan Project Manager

1.0 INTRODUCTION

The Ministry of Transportation and Infrastructure (MOTI) is proposing to create two new bus stops and upgrade three existing bus stops along the Mary Hill Bypass and Highway 7 to enhance the safety and accessibility of public transportation in Port Coquitlam, BC (the Port Coquitlam Transit Station Upgrade Project, or the Project). Access to the existing bus stops is a safety concern due to the lack of designated pathways for pedestrians. These improvements are part of a greater plan to create multi-use paths throughout the City of Port Coquitlam. The five Project sites include (Figure 1):

- The eastbound lane of Highway 7 and Sherling Avenue (one site, hereafter referred to as Sherling Ave);
- The eastbound and westbound lanes of Mary Hill Bypass and Kingsway Avenue (two sites, hereafter referred to as EB Kingsway Ave and WB Kingsway Ave), and
- The eastbound and westbound lanes of Mary Hill Bypass and Broadway Street (two sites, hereafter referred to as EB Broadway St and WB Broadway St).

The Sherling Ave and WB Broadway St locations will be new bus stops and the remaining three will receive upgrades including widening the road shoulder by several meters to create sidewalk access to the existing bus stops. Designs at the sites are at various stages of completion, with 100% design anticipated at all locations by June 2024.

Project activities such as clearing, grubbing, and road widening may trigger environmental permits and/or require considerations under federal and provincial legislation including the *Fisheries Act* (FA), *Water Sustainability Act* (WSA), *Migratory Birds Convention Act* (MBCA)*, Species at Risk Act, Wildlife Act,* and *Weed Control Act*. As such, Project planning will need to consider these potential permits and their respective review timelines.

Hatfield Consultants (Hatfield) was retained by MOTI to provide environmental services on the Project and prepare an Environmental Constraints Report. This report summarizes the environmental values present at each site, identifies permitting and regulatory implications associated with the design, and suggests strategies for an efficient permitting process while also minimizing potential adverse environmental impacts.

Figure 1 Project area overview.

Legend

- Bus Stop
- Watercouse
- Open Channels (Ditch)
- Road

Data Sources:
a) Watercourses, Fresh Water Atlas 2011.
b) Bus stops, Hatfield 2024.
c) Roads, Digital Road Atlas 2017.
d) Open Channels, City of Port Coquitlam 2024.
e) Background Imagery, north portion Coquitlam Imagery 2023 7.5 cm 3 March 2023, south portion Port of Vancouver, 10 cm 13 April 2021, Esri Online Service.

0 100 200 300 m

N

Scale: 1:12,000

Projection:NAD 1983 UTM Zone 10N

Hatfield
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Professional Environmental Services As and When Required

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MOTI11817_Highway_7_BusStops_20240411_v0_2_VP

2.0 PROJECT AREA OVERVIEW

The five Project sites, collectively referred to as the Project area are located within the Mary Hill Bypass and Highway 7 right-of-way and surrounded by industrial development within the City of Port Coquitlam. This highly developed area is situated within the Pitt River watershed and the Coastal Western Hemlock Biogeoclimatic zone and dry maritime subzone (CWHdm). Watercourses within the Project area are highly altered and limited to roadside ditches connected by a series of culverts and storm sewers that collect surface runoff from developed areas. Site-specific coordinates are provided in Table 1.

Table 1 Highway 7 and Mary Hill Bypass bus stop upgrade locations.

Site Name	Coordinates (UTM Zone 10U)
WB Broadway St	517361 E 5454296 N
EB Broadway St	517381 E 5454271 N
WB Kingsway Ave	518175 E 5454853 N
EB Kingsway Ave	518442 E 5454890 N
Sherling Ave	518794 E 5455586 N

3.0 METHODS

To identify environmental values within the Project area, a desktop review was conducted followed by a site assessment on March 26, 2024. The study area for both the desktop and site assessment included the anticipated Project footprint based on the 50% design drawings (Appendix A1) and a 50 m buffer around all Project sites with an extended buffer to assess watercourse connectivity and nests with year-round protection where required. The results of the desktop assessment were used to guide the site assessment and fill information gaps where they occur.

3.1 DESKTOP REVIEW

3.1.1 Fish and Fish Habitat

Hatfield conducted a desktop review of fish and fish habitat within the study area using the following data sources:

- Aquatic Species at Risk Map;
- Port Coquitlam ArcGIS Map (PoCoMap);
- BC Fish Inventories Data Queries (FIDQ);
- BC Conservation Data Centre (CDC):
    - CDC iMap;
    - BC Species & Ecosystem Explorer;
- Ecological Reports Catalogue (ECOCat); and
- Habitat Wizard.

3.1.2 Vegetation and Wildlife

Hatfield conducted a desktop review of terrestrial resources (i.e., vegetation and wildlife) within the study area using the following sources:

- CDC iMap (BC CDC 2024);
- InvasivesBC (MOF 2024);
- Community Mapping Network:
    - BC Great Blue Herons Atlas (CMN 2018a);
    - Wildlife Tree Stewardship Atlas (CMN 2018b); and
- Global Biodiversity Information Facility (GBIF 2024).

3.2 FIELD ASSESSMENT

3.2.1 Fish Habitat

Fish habitat assessments of watercourses that potentially interact with the Project footprint were conducted at each site within the study area. Modified RISC standards (RISC 2004) were used to collect average channel width and depth including other key fish habitat features (e.g., cover, deep pools, channel complexity). To inform fish habitat quality, in situ water quality measurements (i.e., pH, temperature, turbidity, conductivity, and dissolved oxygen) were taken at a representative location within the footprint of each Project site and compared to applicable BC Water Quality Guidelines for the Protection of Aquatic Life (BCWQG; MoE 2024). A Hannah combo meter was used to measure pH, temperature, and conductivity. A LaMotte 2020i meter was used to measure turbidity, and a LaMotte dissolved oxygen titration kit was used to measure dissolved oxygen.

Ditches were assessed for fish connectivity by locating existing culverts upstream and downstream of each site and documenting the conditions at each culvert (e.g., presence of fish barriers). Mapped ditches were assessed to determine if they met the definitions of a watercourse per the *Water Sustainability Act*, including the following:

- evidence of scour;
- depositional materials (i.e., substrate composition); and
- a defined channel.

3.2.2 Vegetation and Wildlife

Vegetation and wildlife reconnaissance assessments were conducted within the study area to characterize current vegetation communities and identify the presence of invasive species, potential amphibian breeding habitat, breeding bird nesting habitat, and nests with year-round protection within approximately 100 m of each site.

4.0 RESULTS

Information obtained from the desktop review and site assessment was reviewed to determine environmental values and associated Project implications within the study area, including the fish-bearing status of watercourses, fish and wildlife habitat quality, the location of culverts and potential barriers to fish passage, and species at risk and of conservation concern. Although a fulsome inventory of environmental values within the study area were documented, only those that interact with, or have implications to the Project footprint are discussed.

4.1 SHERLING AVENUE

A new bus stop will be constructed between the existing roadway and the neighbouring Canadian Pacific rail yard retaining wall. The proposed Project footprint will require clearing and grubbing of existing upland vegetation (Appendix A1).

4.1.1 Current Conditions

4.1.1.1 Fish Habitat

The desktop review identified an open-channel ditch on the south side of Highway 7 along the eastbound lane. This ditch is characterized as an A0 stream (potentially fish-bearing) under the Municipal Watercourse Protection Development Permit Area (DPA) upstream of the Project footprint (on the west side of Sherling Ave/Highway 7 intersection) and is not classified under the DPA within the Project footprint (on the east side of Sherling Ave/Highway 7 intersection). Municipal mapping shows a storm main underneath the proposed Project footprint.

No evidence of a ditch/watercourse was observed within the Project footprint during the site assessment (Figure 2: Photo 2.2) and a manhole was observed confirming the presence of the storm main under the Project footprint. The area lacks the key features that define a watercourse under the WSA and also lacks fish habitat. No watercourse or fisheries permitting considerations are required at this site.

4.1.1.2 Vegetation and Wildlife

Critical habitat for species at risk, mapped wildlife trees, or mapped great blue heron (*Ardea herodias fannini*) nests were not identified (BC CDC 2023, CMN 2018a, CMN2019b); however, Japanese knotweed (*Reynoutria japonica* var. *japonica*; MOF 2024) and a masked species at risk occurrence (Object ID: 65027) are documented (BC CDC 2023). Project works will not impact the masked species at risk due to the distance from the Project area and nature of activities (K. Stipec, e-mail message, May 13, 2024).[1] This area is also located within a Japanese beetle-regulated area (CFIA 2023).

[1] This masked occurrence spans all five bus stop locations however, is not discussed further given lack of implications on the Project.

During the site assessment, the Project footprint was characterized primarily by non-native shrubs and grasses, specifically Himalayan blackberry (*Rubus armeniacus*) and reed canarygrass (*Phalaris arundinacea*; Figure 2: Photo 2.1). Native riparian shrubs and small trees including hardhack (*Spiraea douglasii* var. *douglasii*), rose (*Rosa* sp.), red-osier dogwood (*Cornus sericea*), salmonberry (*Rubus spectabilis*), willow (*Salix* sp.), and red alder (*Alnus rubra*) were present but occurred less frequently (Figure 2: Photo 2.2; Table A2.1). Knotweed sp. (*Polygonaceae* sp.) was observed throughout the study area (Figure 2: Photo 2.1) which aligns with the documented occurrences of Japanese knotweed identified during the desktop review. Wildlife trees or snags were not identified in the Project footprint.

The vegetation within the Project footprint could provide nesting habitat for bird species that have protection under the MBCA. No amphibian breeding habitat or standing water was present at the time of the assessment and is unlikely to be present during any time of the year as existing drainage infrastructure restricts the presence of standing water.

An active nest of an unknown raptor species (Figure 2: Photo 2.3 and Photo 2.4) was observed north of Sherling Ave (estimated location UTM 10U 518659 E 5455661 N) approximately 130 m outside the Project footprint. The exact species could not be identified; however, it was not a species of year-round protection under the *Wildlife Act* (e.g., bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*)). Given the distance between the Project footprint and the nest, in addition to the urban surroundings, additional mitigations for the nest during construction are unlikely to be required; however, per MOTI standard practices verification of the nest status by an appropriately qualified professional (AQP) prior to commencement of construction is recommended.

Figure 2 Notable features present at Sherling Ave on March 26, 2024.

Photo 2.1 **Himalayan blackberry, reed canary grass, and knotweed observed throughout the Sherling Ave site.**

Photo 2.2 **Typical vegetation structure present in the Sherling Ave site. Storm main (yellow arrow) indicates below ground water infrastructure. No watercourses were present.**

Figure 2 (Cont'd.)

Photo 2.3 **Nest tree containing a raptor nest (circled in yellow) north of Sherling Ave outside Project footprint.**

Photo 2.4 **Raptor species (circled in yellow) sitting in a large stick nest north of Sherling Ave.**

4.1.2 Environmental Constraints

4.1.2.1 Design Implications

No environmental design constraints or regulatory implications were identified in the Project footprint.

4.1.2.2 Construction Implications

The following environmental considerations will apply during the implementation of the Sherling Ave bus stop and should be considered during scheduling and procurement:

- Knotweed and other non-native species management should follow the Best Management Practices (BMPs) provided by Metro Vancouver and the Invasive Species Council of Metro Vancouver (ISCMV) (Metro Vancouver n.d.) and the City of Coquitlam (Page and Lilley 2008);
- The Primary bird nesting season is generally March 1 to August 15, but the window should be refined using the Birds Canada Nesting Query Tool (Birds Canada 2024) and General Nesting Periods of Migratory Birds in Canada (Government of Canada 2023) to account for species- and site-specific conditions. If construction occurs during the breeding bird window, pre-clearing nest sweeps and subsequent monitoring following the MOTI nest survey protocol (MOTI 2023) will be required;
- An AQP should evaluate the status of the identified raptor nest prior to construction and if the AQP determines it required, recommend monitoring of the nest during construction; and
- Given this site is located within a Japanese beetle-regulated area and clearing and grubbing is required, a movement certificate from the Canadian Food Inspection Agency (CFIA) is likely required to facilitate the movement of plants with soil or soil-related matter attached. An estimated turnaround time for related permits is two weeks.

4.2 EASTBOUND KINGSWAY AVENUE

The existing bus stop at the EB Kingsway Ave site is located next to a sidewalk that will be widened to allow for a 3 m wide multi-use path along the road shoulder of the Mary Hill Bypass. A vegetated area exists at the road intersection (Kingsway Ave and Mary Hill Bypass) that is maintained (i.e., periodic mowing/ brushing) to protect the BC Hydro lines above. Preliminary design plans include the installation of two catch basins along the road shoulder and the installation of a storm main along the multi-use path, south of the bus stop. Minimal clearing and grubbing will be required along the existing sidewalk and on the south end of the multi-use path to facilitate the design (Appendix A1).

4.2.1 Current Conditions

4.2.1.1 Fish Habitat

Watercourses were not identified within the study area during the desktop review. This was confirmed during the site assessment.

4.2.1.2 Vegetation and Wildlife

Critical habitat for species at risk, mapped wildlife trees, or mapped great blue heron nests overlapping with the EB Kingsway Ave study area were not identified during the desktop review (BC CDC 2023, CMN 2018a, CMN 2018b). There are records of Japanese knotweed (MOF 2024) on the north side of Highway 7. This area is also located within a Japanese beetle-regulated area (CFIA 2023).

At the time of the assessment, the majority of the study area and footprint was mowed; however, based on remnant pieces of vegetation this site is likely characterized primarily by Himalayan blackberry and grasses with an unknown rose species occurring less frequently (Figure 3: Photo 3.3; Table A2.2). The area adjacent to the sidewalk but outside the Project footprint is characterized by undisturbed shrubs and small trees. Shrubs in this area consisted of Himalayan blackberry and rose with hardhack occurring less frequently. Trees were comprised primarily of black cottonwood (*Populus trichocarpa*) (Figure 3: Photo 3.4) and no wildlife trees or snags were identified in the Project footprint.

Habitat for wildlife is limited given the routine maintenance of vegetation; however, vegetation present could provide nesting habitat for bird species that have protection under the MBCA (Figure 3: Photo 3.2). The site is not suitable for pond-breeding amphibians as there was no evidence of standing water at the time of the assessment and vegetation is typical of upland environments suggesting standing water does not occur at any time of the year.

Figure 3 Notable features at EB Kingsway Ave on March 26, 2024.

Photo 3.1 View of maintained area southwest of proposed bus stop.

Photo 3.2 Vegetation suitable for nesting birds within the study area.

Photo 3.3 Mowed vegetation at the EB Kingsway Ave site.

Photo 3.4 Vegetation growing along the pathway at the EB Kingsway Ave site.

4.2.2 Environmental Constraints

4.2.2.1 Design Implications

No environmental design constraints or regulatory implications were identified in the Project footprint.

4.2.2.2 Construction Implications

The following construction implications should be considered during scheduling and procurement:

- Management of invasive species such as Himalayan blackberry should follow the BMPs provided by Metro Vancouver and the ISCMV (Metro Vancouver n.d.) and the City of Coquitlam (Page and Lilley 2008).
- The primary bird nesting season is generally March 1 to August 15, but the window should be refined using the Birds Canada Nesting Query Tool (Birds Canada 2024) and General Nesting Periods of Migratory Birds in Canada (Government of Canada 2023) to account for species- and site-specific conditions. If construction occurs during the breeding bird window, pre-clearing nest sweeps and subsequent monitoring following the MOTI nest survey protocol (MOTI 2023) will be required.

- Given this site is located within a Japanese beetle-regulated area and clearing and grubbing is required, a movement certificate from the CFIA is likely required to facilitate the movement of plants with soil or soil-related matter attached. An estimated turnaround time for related permits is two weeks.

4.3 WESTBOUND KINGSWAY AVENUE

The existing bus stop at the WB Kingsway Ave site is located approximately 140 m west of the Kingsway Ave and Mary Hill Bypass intersection. Access to the existing bus stop currently consists of a narrow footpath along the south side of a ditch adjacent to the Mary Hill Bypass. As space for development at this site is limited, preliminary design plans include a retaining wall along the south side of the ditch for approximately 140 m from the bus stop pullout to the Kingsway north intersection (Appendix A1). This retaining wall will allow for more space to create a sidewalk and an extended bus pullout. Clearing and grubbing of vegetation along the south ditch bank will be required along the length of the Project footprint.

4.3.1 Current Conditions

4.3.1.1 Fish Habitat

A desktop review, and later confirmed during the site assessment identified an open-channel ditch north of the Mary Hill Bypass westbound lane adjacent to both the WB Kingsway Ave site and WB Broadway St site. Flows in this ditch are conveyed west from a storm main under Kingsway Ave, draining into Broadway Creek through a box culvert under Broadway St. This ditch is classified as an A0 stream (potentially fish-bearing) under the Municipal Watercourse DPA. Broadway Creek is a tributary of the lower Pitt River and has been classified as an A-class stream (fish-bearing) containing threespine stickleback, coho salmon (*Oncorhynchus kisutch*), bullhead (*Ameiurus* sp.), and cutthroat trout (*Oncorhynchus clarkii*) (FIDQ 2024).

In situ water quality measured on site was within the BCWQG (Appendix A3; Table A3.1); however, hydrocarbon sheens were visually observed throughout the channel. Water quality within this ditch likely varies seasonally basis and may beless suitable for aquatic life during the summer months (e.g., lower DO and higher temperatures).

There were no visual observations of fish in the ditch at the time of the assessment and fish habitat within the study area was considered marginal due to the lack of coarse-grained sediment (e.g., gravels, cobbles) necessary for spawning, and the lack of complexity for rearing fish within the ditch (e.g., deep pools, instream structures such as large woody debris and boulders). Ditch substrates were comprised of a thick layer of organics and fine sediment. Instream and overhanging vegetation were present throughout the ditch (see Section 4.3.1.2), providing cover and shade for fish if present. Habitat provisions associated with the ditch are likely limited to food and nutrient inputs to Broadway Creek, potential seasonal access for juvenile salmonids during favourable water quality conditions, and/or year-round habitat for coarse fish species (e.g., threespine stickleback).

Although characterized as marginal fish habitat, this ditch is considered a fish-bearing watercourse, as the ditch is connected to Broadway Creek, a confirmed fish-bearing watercourse and no barriers to fish passage between Broadway Creek were observed.

4.3.1.2 Vegetation and Wildlife

Critical habitat for species at risk, mapped wildlife trees, mapped great blue heron nests, or invasive species overlapping with the EB Kingsway Ave study area were not identified during the desktop review (BC CDC 2023, CMN 2018a, CMN 2018b, MOF 2024). This area is located within a Japanese beetle-regulated area (CFIA 2023).

Riparian vegetation at the WB Kingsway Ave site was comprised primarily of Himalayan blackberry, hardhack, and reed canarygrass (Figure 4: Photo 4.2; Table A2.3). Landscaped vegetation including trees, ornamental shrubs, and maintained grass (Figure 4: Photo 4.2; Photo 4.3) occurs adjacent to the ditch. Emergent instream vegetation consisted primarily of common cattail (*Typha latifolia*) and lesser cattail (*Typha angustifolia*) (Figure 4: Photo 4.4).

The riparian vegetation and nearby trees provide potential nesting habitat for bird species that have protection under the MBCA, and the shallow, low-velocity flow within the ditch could provide breeding opportunities for some amphibians.

Figure 4 Notable features at WB Kingsway Ave on March 26, 2024.

Photo 4.1 Ditch inlet located upstream of Project site.

Photo 4.2 Dense shrubby vegetation surrounding the ditch and narrow footpath used to access the existing bus stop.

Photo 4.3 Instream vegetation is present throughout the ditch.

Photo 4.4 Landscaping including conifer trees can be seen in the background.

4.3.2 Environmental Constraints

4.3.2.1 Design Implications

- Project activities at this site will likely interact with the riparian and/or instream habitat of the ditch. Efforts should be made during detailed design to reduce impacts on both riparian and instream habitats associated with the ditch. Minimizing or avoiding impacts on these environments may reduce permitting requirements. Given the current design, the following permits are anticipated:
    - A DFO Request for Review (RFR) in accordance with the *Fisheries Act* which has an anticipated review timeline of 4-6 months following submission of application; and
    - A WSA Section 11 Changes In and About a Stream (CIAS) Approval is anticipated. CIAS Approval permits are estimated to take 6 to 12 months; however estimated approval timelines may be shortened with MOTI's new internal approval process.
- Restoration or enhancement of the instream and riparian areas associated with the ditch may be required based on permit conditions. Areas eligible for enhancement should be considered in the final design to support permit applications.

4.3.2.2 Construction Implications

- If construction activities interact directly with instream habitat, the following salvage permits may be required:
    - Fish Collection Permits through the Province and DFO; and
    - *Wildlife Act* amphibian salvage permit.
- A permit may be required to remove an active bird nest if identified and construction cannot avoid the area until nesting is complete.
- If instream works are planned within the watercourse, fish isolation and salvage by an AQP are anticipated. BMPs will be provided in the associated permits. Based on the species that may be present, the regional instream work window should be considered when scheduling Project activities (August 1 to Sept 15; Government of BC 2006). It is possible that an extension to this window may be acceptable by governing bodies if the appropriate rationale and mitigation measures are in place.
- Knotweed and other invasive species management should follow the BMPs provided by Metro Vancouver and the ISCMV (Metro Vancouver n.d.) and the City of Coquitlam (Page and Lilley 2008).
- The bird nesting season is generally March 1 to August 15, but the window should be refined using the Birds Canada Nesting Query Tool (Birds Canada 2024) and General Nesting Periods of Migratory Birds in Canada (Government of Canada 2023) to account for species- and site-specific conditions. If construction occurs during the breeding bird window, pre-clearing nest sweeps and subsequent monitoring following the MOTI nest survey protocol (MOTI 2023) will be required.

- Avoiding instream works within the main breeding season for amphibians (generally April to August; FLNRO 2016) will lessen the risk of interactions with amphibians. Should the work be scheduled within the amphibian breeding period, the contractor's AQP may be required to complete an amphibian salvage in accordance with the BMPs for Amphibians and Reptiles in BC (FLNRO 2016) and salvage permit conditions.
- Given this site is located within a Japanese beetle-regulated area and clearing and grubbing is required, a movement certificate from the CFIA is likely required to facilitate the movement of plants with soil or soil-related matter attached. An estimated turnaround time for related permits is two weeks.

4.4 WESTBOUND BROADWAY STREET

Preliminary designs place the proposed bus stop approximately 175 m northeast of the WB Broadway Street and Mary Hill Bypass intersection, near the beginning of the turning lane (Figure 5: Photo 5.4). Similar to the WB Kingsway Ave site, space for development at this site is limited. The current design includes a retaining wall along the south bank of a ditch for approximately 45 m where the bus stop is proposed (Appendix A1). This retaining wall will improve public safety by creating more space for a sidewalk and extended bus pullout. A 300 mm storm pipe and 15 catch basins that drain into the ditch will be installed along the proposed sidewalk. The catch basin outlets will be armoured with class 10 kg riprap to prevent erosion and sedimentation of the ditch. Clearing and grubbing of vegetation will be required along the south ditch bank for approximately 200 m.

4.4.1 Current Conditions

4.4.1.1 Fish Habitat

The open-channel ditch at WB Broadway St is an extension of the ditch described at the WB Kingsway Ave site which drains to Broadway Creek and retains many of the same characteristics (refer to Section 4.3.1.1). In situ water quality measured during the site assessment were within BCWQG (Appendix A3; Table A3.1). Water quality within this ditch likely varies seasonally and may be less suitable for aquatic life during the summer months (e.g., lower DO and higher temperatures).

There were no visual observations of fish in the ditch at the time of the assessment and fish habitat was considered marginal due to the lack of coarse-grained sediment (e.g., gravels, cobbles) necessary for spawning, and the lack of complexity for rearing fish within the ditch (e.g., deep pools, instream structures such as large woody debris and boulders). Ditch substrates were comprised of a thick layer of fine sediment (Figure 5: Photo 5.2). Some overhanging vegetation was present on the north bank of the ditch, but due to recent mowing, the entire south bank was devoid of overhanging vegetation (refer to Section 4.4.1.2), limiting overhead cover and shade for fish (Figure 5: Photo 5.3). Habitat provisions associated with the ditch are likely limited to food and nutrient inputs to Broadway Creek, potential seasonal access for juvenile salmonids during favourable water quality conditions, and/or year-round habitat for coarse fish species (e.g., threespine stickleback).

Similar to the WB Kingsway Ave site, this ditch is considered a fish-bearing watercourse. Barriers to fish passage between Broadway Creek and the ditch were not observed and in situ water quality at the time of the assessment would not preclude fish, including salmonids.

4.4.1.2 Vegetation and Wildlife

Critical habitat for species at risk, mapped wildlife trees, or mapped great blue heron nests overlapping with the WB Broadway St study area were not identified during the desktop review (BC CDC 2023, CMN 2018a, CMN 2018b); however, there are records of Japanese knotweed (MOF 2024). This area is also located within a Japanese beetle-regulated area (CFIA 2023).

Evidence of recent maintenance activities were noted, particularly on the south ditch bank where the western extent of the riparian area was mowed (Figure 5: Photo 5.1, Photo 5.3, and Photo 5.4), and the north bank where a liner has been placed likely to control invasive species (Figure 5: Photo 5.1, Photo 5.3, and Photo 5.4). Vegetation remnants indicate that prior to mowing this site was likely predominantly Himalayan blackberry. Hardhack and coastal red elderberry (*Sambucus racemosa*) were prevalent in the riparian area with snowberry and roses used as hedges along the fence line adjacent to the strip mall (Figure 5: Photo 5.3). The eastern extent of the site is characterized by dense and diverse riparian vegetation surrounding the ditch (Figure 5: Photo 5.6; Table A2.4). A well-maintained restoration site complete with coarse woody debris and snags was observed beyond the Project footprint north of the ditch (Figure 5: Photo 5.5).

Existing vegetation that has not been mowed could provide nesting habitat for avian species. Further, the snags in the restoration site may provide nesting habitat for cavity-nesting species. In the eastern unmaintained portion of the ditch, a potential den (e.g. hollow in the bank) was observed under a shrub (approximate location UTM 10U 517560 E 5454484 N) which could be used by mustelids (e.g. otters). Water with minimal flow could provide breeding opportunities for some amphibians.

Figure 5 Notable features at WB Broadway St on March 26, 2024.

Photo 5.1 Water within the ditch was turbid with hydrocarbon sheens throughout.

Photo 5.2 Broadway Creek culvert connecting the WB Broadway site ditch to a fish-bearing watercourse.

Figure 5 (Cont'd.)

Photo 5.3 Sparse vegetation remains along the south ditch bank, providing limited cover for fish.

Photo 5.4 Road shoulder begins to narrow where right turn lane of the Mary Hill Bypass and Broadway St begins.

Photo 5.5 Snags and coarse woody debris on the north bank outside the Project footprint.

Photo 5.6 Dense riparian vegetation growing at the eastern extent of the site.

4.4.2 Environmental Constraints

4.4.2.1 Design Implications

- Project activities at this site will likely interact with the riparian and/or instream habitat of the ditch. Efforts should be made during detailed design to reduce impacts on both riparian and instream habitats associated with the ditch. Minimizing or avoiding impacts on these environments may reduce permitting requirements. Given the current design, the following permits are anticipated:
    - A DFO RFR in accordance with the *Fisheries Act* which has an anticipated review timeline of 4-6 months following submission of application; and
    - A WSA Section 11 CIAS Approval is anticipated. CIAS Approval permits are estimated to take 6 to 12 months; however, estimated approval timelines may be shortened with MOTI's new internal approval process.

- Restoration or enhancement of the instream and riparian areas associated with the ditch may be required based on permit conditions. Areas eligible for enhancement should be considered in the final design to support permit applications.

4.4.2.2 Construction Implications

- If construction activities interact directly with instream habitat, the following salvage permits may be required:
    - Fish Collection Permits through the Province and DFO; and
    - *Wildlife Act* amphibian salvage permit.
- A permit may be required to remove an active bird nest if identified and construction cannot avoid the area until nesting is complete.
- If instream works are planned within the watercourse, fish isolation and salvage by an AQP are anticipated. BMPs will be provided in the associated permits. Based on the species that may be present, the regional instream work window should be considered when scheduling Project activities (August 1 to Sept 15; Government of BC 2006). It is possible that an extension to this window may be acceptable by governing bodies if the appropriate rationale and mitigation measures are in place.
- Knotweed and other invasive species management should follow the BMPs provided by Metro Vancouver and the ISCMV (Metro Vancouver n.d.) and the City of Coquitlam (Page and Lilley 2008).
- The bird nesting season is generally March 1 to August 15, but the window should be refined using the Birds Canada Nesting Query Tool (Birds Canada 2024) and General Nesting Periods of Migratory Birds in Canada (Government of Canada 2023) to account for species- and site-specific conditions. If construction occurs during the breeding bird window, pre-clearing nest sweeps and subsequent monitoring following the MOTI nest survey protocol (MOTI 2023) will be required.
- Avoiding instream works within the main breeding season for amphibians (generally April to August; FLNRO 2016) will lessen the risk of interactions with amphibians. Should the work be scheduled within the amphibian breeding period, the contractor's AQP may be required to complete an amphibian salvage in accordance with the BMPs for Amphibians and Reptiles in BC (FLNRO 2016) and salvage permit conditions.
- Given this site is located within a Japanese beetle-regulated area and clearing and grubbing is required, a movement certificate from the CFIA is likely required to facilitate the movement of plants with soil or soil-related matter attached. An estimated turnaround time for related permits is two weeks.

4.5 EASTBOUND BROADWAY STREET

The existing bus stop at the EB Broadway St site is located approximately 130 m east of the Broadway Street and Mary Hill Bypass intersection. Access to the bus stop is comprised of a narrow footpath along the north bank of a ditch situated south of the Mary Hill Bypass. Space for upgrades is constrained by the narrow road shoulder and existing ditch. Preliminary design plans include the installation of a 75 m-long retaining wall along the north ditch bank from Broadway Street to the existing bus stop pullout. A 300 mm storm pipe and 5 catch basins that drain into the ditch will be installed along the north ditch bank. The catch basin outlets will be armoured with class 10 kg riprap to prevent erosion and sedimentation of the ditch. Clearing and grubbing of vegetation will be required along the length of the Project footprint for approximately 140 m.

4.5.1 Current Conditions

4.5.1.1 Fish Habitat

A ditch is present south of the Mary Hill Bypass within the Project footprint and water in the ditch flows east. The ditch is truncated at the intersection of the Mary Hill Bypass and Broadway St with no upstream input of water. The ditch carries no Municipal DPA classification, and no historical fish observations were documented (Habitat Wizard 2024). The ditch downstream of Project Footprint is connected to the ditch on the westbound side of the highway via a culvert under the Mary Hill Bypass (PoCoMap 2024).

Two instream structures associated with the ditch were noted within the Project footprint Including what appeared to be a berm (10 U 517407 E, 5454293 N) located approximately 65 m east of Broadway Street (Photo 6.3 and Photo 6.4) and a concrete box culvert (10 U 517442 E, 5454315 N) located approximately 90 m east of Broadway Street (Photo 6.5 and Photo 6.6). Although it was not identified by Hatfield in the field, survey data indicates that the berm contains a 500 mm corrugated steel pipe culvert. This culvert has become overwhelmed with organic detritus likely due to lack of maintenance and was not hydraulically connected to the downstream sections of the ditch. The concrete box culvert was also blocked by an accumulation of organic detritus.

Although flow in the ditch was blocked at the time of the survey, the culvert obstructions and organic debris is planned to be removed by the maintenance contractor soon and the entire ditch within the Project footprint will be hydraulically connected.

As described in Section 4.3.1.1 and Section 4.4.1.1, the ditch on the westbound side of the highway is fish-bearing; therefore, due to the connectivity under the Mary Hill Bypass, the ditch is also considered fish-bearing.

The upstream portion of the ditch west of the Project footprint contained turbid water with substrates comprised of organic matter (i.e., leaves and decomposing vegetation). In situ water quality was not within the BCWQG (Appendix A3; Table A3.1).

4.5.1.2 Vegetation and Wildlife

Critical habitat for species at risk, mapped wildlife trees, mapped great blue heron nests, or invasive species were not identified during the desktop review (BC CDC 2023, CMN 2018a, CMN 2018b, MOF 2024). This area is also located within a Japanese beetle regulated area (CFIA 2023).

Riparian vegetation along the south bank was dense with a mix of shrubs and small trees comprised primarily of non-native forsythia and platanus species (Figure 6: Photo 6.1, Photo 6.2, Photo 6.3 and Photo 6.4; Table A2.5). The north bank is maintained and is comprised primarily of grasses (Figure 6: Photo 6.2 and Photo 6.3). Instream vegetation consisted of primarily lesser cattail.

Shrubs and trees could provide nesting habitat for bird species, and American crows (*Corvus brachyrhynchos*) were observed carrying nesting material and perched near existing nests. Low-velocity flow within the ditch could provide breeding opportunities for some amphibians.

Figure 6 Notable features at EB Broadway St on March 26, 2024.

Photo 6.1 View of the upstream section of ditch from the Broadway St south intersection.

Photo 6.2 Ditch was infilled with an excess of organic material resulting in shallow water.

Photo 6.3 View of the ditch facing east from on top of the berm.

Photo 6.4 View of the ditch from on top of the berm (yellow circle) facing west towards the Broadway south intersection.

Figure 6 (Cont'd.)

Photo 6.5 The outlet of the blocked culvert located near the existing bus stop.

Photo 6.6 The inlet of the blocked culvert near the existing bus stop.

Photo 6.7 View of the start of the open-channel ditch facing east, past the existing bus stop.

Photo 6.8 View of the existing bus stop pullout facing west towards Broadway st south intersection.

4.5.2 Environmental Constraints

4.5.2.1 Design Implications

- Project activities at this site will likely interact with the riparian and/or instream habitat of the ditch. Efforts should be made during detailed design to reduce impacts on both riparian and instream habitats associated with the ditch. Minimizing or avoiding impacts on these environments may reduce permitting requirements. The 50% design currently reflects this approach by siting Project features in areas already impacted (e.g., currently culverted). Given the current design, the following permits are anticipated:
    - A DFO RFR in accordance with the *Fisheries Act* which has an anticipated review timeline of 4-6 months following submission of application; and

- A WSA Section 11 CIAS Approval is anticipated. CIAS Approval permits are estimated to take 6 to 12 months; however estimated approval timelines may be shortened with MOTI's new internal approval process.

- Restoration or enhancement of the instream and riparian areas associated with the ditch may be required based on permit conditions; however, based on the 50% design this is considered unlikely at this site.

4.5.2.2 Construction Implications

- If construction activities interact directly with instream habitat, the following salvage permits may be required:
  - Fish Collection Permits through the Province and DFO; and
  - *Wildlife Act* amphibian salvage permit.
- A permit may be required to remove an active bird nest if identified and construction cannot avoid the area until nesting is complete.
- If instream works are planned within the watercourse, fish isolation and salvage by an AQP are anticipated. BMPs will be provided in the associated permits. Based on the species that may be present, the regional instream work window should be considered when scheduling Project activities (August 1 to Sept 15; Government of BC 2006). It is possible that an exception to this requirement can be considered by governing bodies if the appropriate rationale and mitigation measures are in place (e.g., full-time monitoring).
- Invasive species management should follow the best management practices provided by Metro Vancouver and the ISCMV (Metro Vancouver n.d.) and the City of Coquitlam (Page and Lilley 2008).
- The bird nesting season is generally March 1 to August 15, but the window should be refined using the Birds Canada Nesting Query Tool (Birds Canada 2024) and General Nesting Periods of Migratory Birds in Canada (Government of Canada 2023) to account for species- and site-specific conditions. If construction occurs during the breeding bird window, pre-clearing nest sweeps and subsequent monitoring following the MOTI nest survey protocol (MOTI 2023) will be required.
- Avoiding the main breeding season for amphibians (generally April to August; FLNRO 2016) will lessen the risk of interactions with amphibians. Should the work be scheduled within the amphibian breeding period, the contractor's AQP may be required to complete an amphibian salvage in accordance with the BMPs for Amphibians and Reptiles in BC (FLNRO 2016) and salvage permit conditions.
- Given this site is located within a Japanese beetle-regulated area and clearing and grubbing is required, a movement certificate from the CFIA is likely required to facilitate the movement of plants with soil or soil-related matter attached. An estimated turnaround time for related permits is two weeks.

5.0 CONCLUSION

MOTI has proposed the Port Coquitlam Transit Station Upgrade Project to improve safe access to public transportation in Port Coquitlam, BC. Five Project sites have been selected to receive upgrades including the construction of two new bus stops (Sherling Ave and WB Broadway St) and enhancements to three existing bus stops (WB and EB Kingsway Ave and EB Broadway St). All sites are characterized as highly disturbed areas comprised of invasive plant species with limited and marginal fish and wildlife habitat values. Three sites contain ditches that are considered watercourses under the WSA and reviewable waterbodies under the FA (WB and EB Broadway St, and WB Kingsway Ave). Preliminary designs suggest the Project footprint will interact with riparian and aquatic habitats associated with these watercourses, and construction activities will include instream works and clearing and grubbing of existing vegetation. Accordingly, permits pursuant to the WSA and FA are likely required pending design finalization. Best management practices for the removal and management of invasive plant species, the protection of breeding birds, and instream works are key construction mitigation measures that will need to be incorporated into environmental management plans for the Project. Design mitigation strategies to avoid the net loss of fish habitat (aquatic and riparian) will need to be incorporated into the Project design to avoid more onerous permit applications and offsetting plans.

Based on our current understanding of the conceptual designs, potential permits and environmental constraints anticipated for this Project are summarized in Table 2.

Table 2 Summary of Key Environmental Constraints at each Project site.

Site	Watercourse Present	Design Implications	Construction Implications
Sherling Ave	No	▪ No environmental design constraints were identified.	▪ Bird nests are protected during nesting window (Mar 1 to Aug 15) and bird nest surveys completed by an AQP are required during this period. ▪ Active raptor nest confirmed approximately 130 m north of Project footprint. AQP will need to confirm nest status prior to Project start however, no specific additional mitigations are anticipated for the nest. ▪ Invasive species management is required for both Japanese knotweed and Japanese beetle. A soil relocation permit through CFIA is required for Japanese beetle (anticipated timeline is two weeks).
EB Kingsway Ave	No	▪ No environmental design constraints were identified.	▪ Bird nests are protected during nesting window (Mar 1 to Aug 15) and bird nest surveys completed by an AQP are required during this period. ▪ A soil relocation permit through CFIA is required for Japanese beetle (anticipated timeline is two weeks).

Table 2 (Cont'd.)

Site	Watercourse Present	Design Implications	Construction Implications
WB Kingsway Ave and WB Broadway Ave	Yes	▪ Preliminary designs include anticipated impacts to a fish-bearing watercourse. Where possible reduce instream and riparian footprint of infrastructure and include opportunities for habitat enhancement (e.g. area for plantings). ▪ The following permits are anticipated: o RFR (FA) – 4 to 6 months o CIAS Approval (WSA) – 6 to 12 months	▪ Mitigate impacts to fish habitat by avoiding work within wetted areas and conducting work within regional least-risk window (August 1 to Sept 15). Work window may be flexible upon approval by regulators. ▪ Bird nests are protected during nesting window (Mar 1 to Aug 15) and bird nest surveys completed by an AQP are required during this period. ▪ Invasive species management is required for Japanese beetle and a soil relocation permit through CFIA (anticipated timeline is two weeks). ▪ Fish and amphibian salvage by an AQP may be required.
EB Broadway Ave	Yes	▪ Preliminary designs include anticipated impacts to a watercourse. Where possible reduce instream and riparian footprint of infrastructure and include opportunities for habitat enhancement (e.g. area for plantings). ▪ If the Project footprint remains similar to the 50% design and avoids the ditch east of the culvert present in the Project Footprint, the following permits are anticipated: o RFR (FA) – 4 to 6 months o CIAS Approval (WSA) – 6 to 12 months	▪ Mitigate impacts to fish habitat by avoiding work within wetted areas where possible and ideally conducting work within regional least-risk window (August 1 to Sept 15). Given habitat present, justification for work outside the fish window would be considered reasonable. ▪ Bird nests are protected during nesting window (Mar 1 to Aug 15) and bird nest surveys completed by an AQP are required during this period. ▪ Invasive species management is required for Japanese beetle and a soil relocation permit through CFIA (anticipated timeline is two weeks). ▪ Fish and amphibian salvage by an AQP may be required.

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APPENDICES

Appendix A1

Design Drawings

BRITISH COLUMBIA

Ministry of Transportation and Infrastructure

PROJECT NO. 13234-0001

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

ISSUED FOR
50% DETAILED DESIGN
2024-05-01
urbansystems.ca

URBAN SYSTEMS

DRAWING NUMBER: R1-XXXX-000
REV:

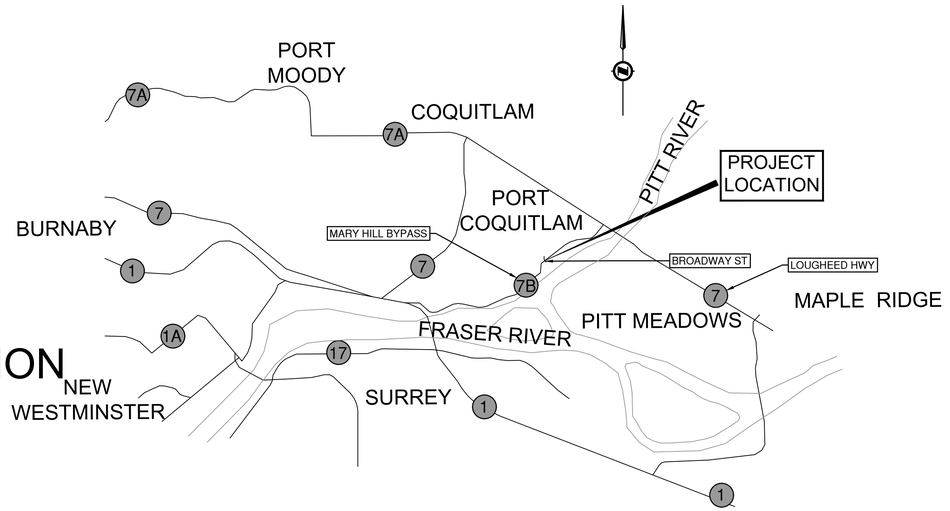
BRITISH COLUMBIA

Ministry of Transportation and Infrastructure

PROJECT NO. 13234-0001

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

GRADING AND PAVING
STA 1000+09.541 - STA 1003+57.431 (0.35km)
Landmark Kilometre Inventory Segment 2717
km 6.36 to km 6.71



LOCATION MAP
NTS

DRAWING INDEX

CIVIL DRAWINGS

NUMBER	DESCRIPTION
R1-XXXX-000	COVER PAGE
R1-XXXX-001	KEY PLAN
R1-XXXX-002	LEGEND
R1-XXXX-101	PLAN
R1-XXXX-201 to 202	PROFILES
R1-XXXX-301 to 303	TYPICAL SECTIONS & DETAILS
R1-XXXX-401	GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING
R1-XXXX-701	DRAINAGE
R1-XXXX-1001 to 1009	DESIGN SECTIONS

ELECTRICAL DRAWINGS

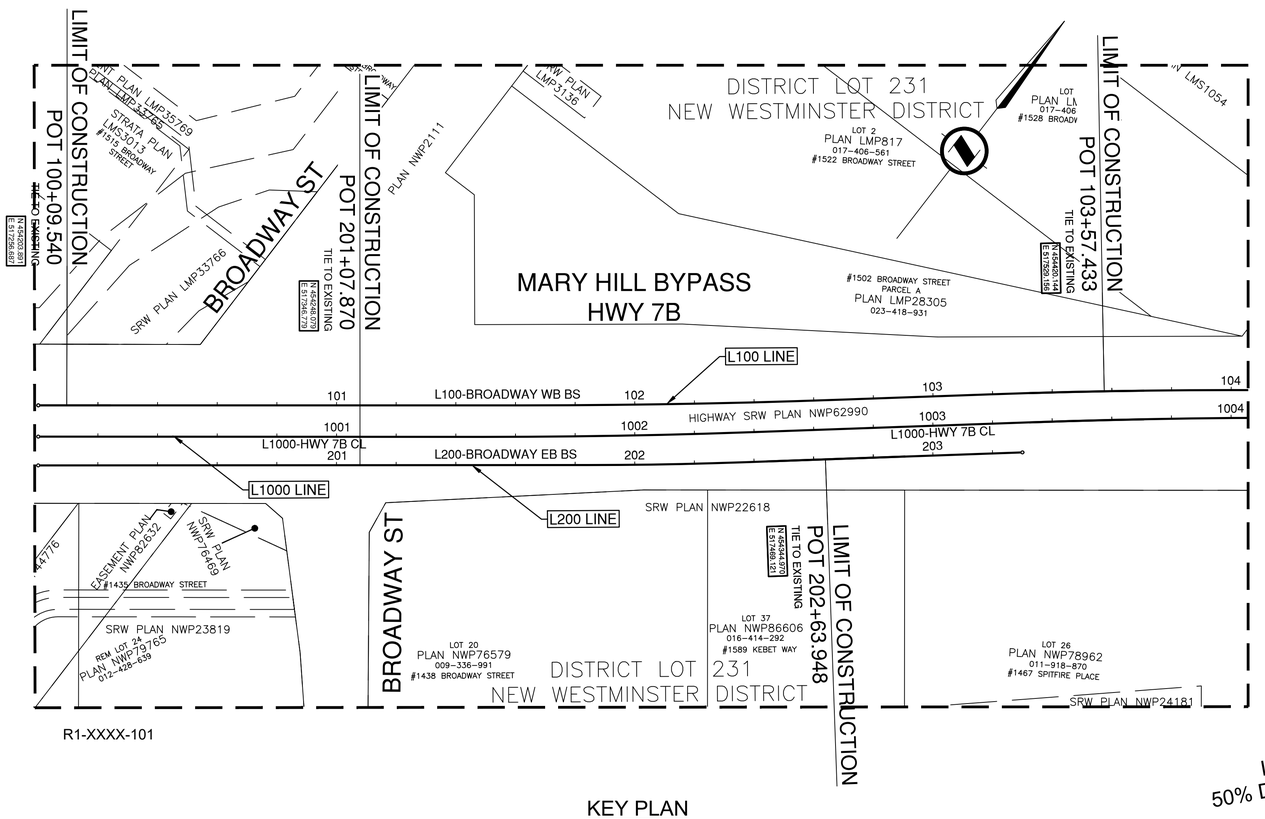
NUMBER	DESCRIPTION
TE-XXXXX-01 to 03	SIGNAL AND LIGHTING MODIFICATIONS

Date: 2023/09/26
Project: Highway 7B at Broadway Street
Tack Point: G5057-23 ACSF: 0.999605
Horizontal Datum: UTM Z10 NAD 83 CSRS
Latitude: 49°15'0.32853"
Vertical Datum: HT2_0 geoid using CGVD28 datum
Longitude: -122°44' 13.76470"

Point ID	Local		Orthometric Height	UTM		Ellipsoidal Height	C.S.F.	Class	Type
	Northing	Easting		Northing	Easting				
G02H2441-19	455026.900	517756.079	2.586	5455027.004	517756.621	-16.045	0.999606	Origin	GCM 290957
G5055-23	455063.047	518951.331	1.913	5455063.137	518951.401	-16.691	0.999607	PROJECT	Rebar
G5057-23	455291.084	519128.562	7.699	5455291.084	519128.562	-10.938	0.999606	PROJECT	Rebar
P5149-23	454041.056	517165.872	2.374	5454041.550	517166.647	-	-	TS	Rebar
P5150-23	453782.386	517109.844	4.589	5453782.982	517110.641	-	-	TS	Rebar
P5162-23	454886.616	518441.063	3.037	5454886.776	518441.335	-	-	TS	Rebar
P5163-23	454892.624	518497.445	2.948	5454892.781	518497.694	-	-	TS	Rebar
P5164-23	454900.556	518573.719	3.189	5454900.710	518573.938	-	-	TS	Rebar
P5165-23	454907.569	518670.955	2.909	5454907.720	518671.136	-	-	TS	Rebar
P5166-23	454945.899	518793.038	2.838	5454946.035	518793.170	-	-	TS	Rebar
P5167-23	455004.687	518888.557	2.041	5455004.800	518888.652	-	-	TS	Rebar
P5168-23	454932.427	518633.520	2.482	5454932.569	518633.716	-	-	TS	Rebar
G5169-23	454909.598	518357.354	3.980	5454909.749	518357.659	-14.656	0.999606	Project	Rebar
G5170-23	454620.865	517772.579	3.082	5454621.130	517773.115	-15.582	0.999606	Project	Rebar
G5171-23	454279.504	517228.899	2.974	5454279.904	517339.606	-15.723	0.999606	Project	Rebar
G5172-23	453692.489	516994.417	4.445	5453693.120	516995.260	-14.271	0.999606	Project	Rebar
G5173-23	454647.705	517840.919	3.729	5454647.959	517841.427	-16.045	0.999606	Project	Rebar
P5174-23	454703.665	517891.692	3.674	5454703.897	517892.181	-	-	TS	Rebar
P5175-23	454738.988	517946.576	3.536	5454739.206	517947.043	-	-	TS	Rebar
P5176-23	454786.151	518027.570	3.444	5454786.350	518028.005	-	-	TS	Rebar
P5177-23	454823.413	58104.944	3.559	5454823.598	518105.348	-	-	TS	Rebar
P5178-23	454864.023	518210.856	3.810	5454864.192	518211.219	-	-	TS	Rebar
P5179-23	454867.832	518262.771	3.857	5454867.999	518263.113	-	-	TS	Rebar
P5180-23	454969.034	518310.451	2.736	5454969.161	518310.775	-	-	TS	Rebar
P5181-23	454872.001	518335.768	3.578	5454872.177	518336.082	-	-	TS	Rebar
P5182-23	454953.596	518434.766	2.521	5454953.729	518435.040	-	-	TS	Rebar
P5183-23	454571.634	517764.309	3.681	5454571.918	517764.848	-	-	TS	Rebar
P5184-23	454529.034	517684.452	3.816	5454529.335	517685.022	-	-	TS	Rebar
P5185-23	454501.549	517677.730	3.130	5454501.861	517678.303	-	-	TS	Rebar
P5186-23	454441.855	517551.792	2.957	5454442.190	517552.415	-	-	TS	Rebar
P5187-23	454317.916	517447.182	3.024	5454318.300	517447.846	-	-	TS	Rebar
P5188-23	454295.871	517394.341	3.741	5454296.264	517395.026	-	-	TS	Rebar
P5189-23	454385.283	517481.933	2.939	5454385.641	517482.584	-	-	TS	Rebar
P5190-23	453739.060	517024.474	4.187	5453739.673	517025.305	-	-	TS	Rebar
P5194-23	454328.957	517283.836	2.774	5454329.337	517284.564	-	-	TS	Rebar
P5195-23	454229.291	517333.572	3.289	5454229.710	517334.281	-	-	TS	Rebar
P5196-23	454161.580	517243.831	2.597	5454162.026	517244.576	-	-	TS	Rebar
P5197-23	454125.762	517189.479	3.423	5454126.222	517190.245	-	-	TS	Rebar
P5198-23	454064.617	517148.877	3.572	5454065.101	5171149.659	-	-	TS	Rebar
P5199-23	453973.583	517141.545	3.021	5453974.103	517142.330	-	-	TS	Rebar
P5200-23	453795.978	517091.760	3.154	5453796.569	517092.565	-	-	TS	Rebar
P5201-23	453912.256	517161.863	3.846	5453912.801	517162.640	-	-	TS	Rebar
P5202-23	454199.854	517246.846	3.412	5454200.285	517247.590	-	-	TS	Rebar

All local coordinates are derived by first scaling from the Tack Point and then removing the millionth digit from the Northing

Notes:
* The CGG2013a Geoid uses the CGVD2013 vertical datum and the HT2_0 Geoid uses the CGVD28 vertical datum
* Corridor control can be derived from robust network adjustments using sources such as Mascot, active, and/or PPP for valid absolute accuracies.
* Project control originates from a corridor point and closes to a network confined within the specific project to provide survey grade relative accuracies.
* "name"static brass cap monuments-year. "G" static tag #-year. "K" multi epoch rtk, "P"closed total station traverse.



R1-XXXX-101

KEY PLAN
0 10 1:1000 50m

REFER TO TENDER DRAWING PACKAGE APPROVAL FORM	REFER TO TENDER DRAWING PACKAGE APPROVAL FORM
DIRECTOR, ENGINEERING	REGIONAL DIRECTOR
DATE	DATE

ISSUED FOR
50% DETAILED DESIGN
2024-05-01
urbansystems.ca

URBAN SYSTEMS

DRAWING NUMBER	REV
R1-XXXX-001	

PLOT DATE: 2024-05-01 5:21:30 PM yke U:\Projects_SUR\19610518\07\D-Design\CAD\DrawingProduction\000_CoverKeyPlanLegend\000_COV__H7B BROADWAY.dwg

LEGEND

EXISTING SYMBOLS

AERIAL UTILITIES

- POWER POLE
- POWER POLE WITH TRANSFORMER
- POWER / TELEPHONE POLE WITH TRANSFORMER
- POWER GUY POLE
- POWER / TELEPHONE POLE
- POWER / TELEPHONE GUY POLE
- ANCHOR OR GUY WIRE
- DEADMAN
- TELEPHONE POLE
- TELEPHONE GUY POLE
- HIGH TENSION POLE
- HIGH TENSION TOWER
- UTILITY POLE

SURVEY

- CONTROL POINT
- CONTROL MONUMENT
- LEGAL MONUMENT
- STANDARD IRON PIN FOUND
- CAPPED IRON PIN
- LEAD PLUG
- BENCHMARK
- SPOT ELEVATION

GEOTECHNICAL

- TESTPIT
- TESTHOLE
- OBSERVATION WELL

DETAIL

- GATE POST
- MAILBOX
- OLD POST
- DELINEATOR POST
- FLAGPOLE
- DECORATIVE TREE
- TREE
- PILING
- CONCRETE PILLAR
- WELL
- SWAMP
- DIRECTIONAL ARROW

DRAINAGE & UTILITIES

- STORM MANHOLE
- STANDARD CATCH BASIN
- ROUND CATCH BASIN
- DRYWELL
- CB MANHOLE
- CULVERT INLET

DRAINAGE & UTILITIES

- CULVERT OUTLET
- SANITARY MANHOLE
- UTILITY MANHOLE
- WATER MANHOLE
- MANHOLE UNKNOWN

ELECTRICAL

- JUNCTION BOX
- UTILITY VAULT
- LAMP STANDARD
- UTILITY KIOSK
- UTILITY PEDESTAL
- TRAFFIC COUNTER
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROLLER

METERS

- VALVE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- WELL
- STANDPIPE / WATER BLOW OFF
- AIR VALVE
- GAS VALVE
- SERVICE METER

UNDERGROUND

- VENT/BREATHER PIPE
- FILLER CAP
- FUEL / GAS PUMP
- FUEL TANK
- SEPTIC TANK
- UNDERGROUND MARKER (MISC)
- IRRIGATION JUNCTION BOX
- IRRIGATION SPRINKLER HEAD

ROAD SIGNS

- STANDARD SIGN
- COMMERCIAL SIGN
- SIGN BRIDGE STRUCTURE
- CANTILEVER STRUCTURE
- TWO POST SIGN
- TWO POST SIGN (BREAKAWAY)
- STANDARD DAVIT POLE - TYPE 3
- STANDARD COMBINATION POLE - TYPE 1
- HEAVY DUTY DAVIT POLE - TYPE 6
- HEAVY DUTY COMBINATION POLE - TYPE 7
- HEAVY POLE - TYPE H
- HEAVY COMBINATION POLE - TYPE H

EXISTING LINE TYPES

LOT BOUNDARIES

- SECTION LINE / DISTRICT LOT
- 1/4 SECTION BOUNDARY
- LOT BOUNDARY
- EASEMENTS

EXISTING LINE TYPES

MAN-MADE FEATURES

- RAILWAY TRACKS
- RAILWAY BALLAST
- ROAD MARKING - YELLOW
- ROAD MARKING - WHITE
- ROAD MARKING - BROKEN
- CROSSWALK
- STOP LINE
- EDGE OF ROAD - PAVED
- EDGE OF ROAD GRAVEL
- GRAVEL SHOULDER
- DIRT ROAD
- GRAVEL ROAD
- EDGE OF GRAVEL
- SIDEWALK
- CONCRETE PAD
- FENCE
- TOP OF CURB
- CL OF GUTTER
- CONCRETE ROAD BARRIER
- TOP OF FILL
- RIP RAP
- BUILDING
- TREE LINE
- LAWN LINE

HYDRAULIC

- CULVERT
- DITCH CENTER
- DITCH EDGE
- CENTER OF CREEK
- HIGH WATER
- EDGE OF WATER
- HIGH WATER MARK (EXTREME)
- SEEPAGE LINE

TOPOGRAPHY

- BASE OF SLOP
- MARSH
- TOP OF ROCK
- SLIDE
- TALUS
- TRAIL
- TOP OF SLOPE

UTILITIES

- OVERHEAD UTILITY
- PIPELINE (GAS)
- UG ELECTRIC
- UG COMMUNICATION
- STORM SEWER
- SANITARY SEWER
- WATER MAIN
- MISCELLANEOUS UNDERGROUND

PROPOSED SYMBOLS

AERIAL UTILITIES

- POWER POLE
- POWER POLE WITH TRANSFORMER
- POWER / TELEPHONE POLE WITH TRANSFORMER
- POWER GUY POLE
- POWER / TELEPHONE POLE
- POWER / TELEPHONE GUY POLE
- ANCHOR OR GUY WIRE
- DEADMAN
- TELEPHONE POLE
- TELEPHONE GUY POLE
- HIGH TENSION POLE
- HIGH TENSION TOWER

DETAIL

- GATE POST
- MAILBOX
- POST
- POST MOUNTED DELINEATOR
- FLAGPOLE
- DIRECTIONAL ARROW

DRAINAGE & UTILITIES

- MANHOLE
- STORM MANHOLE
- STANDARD CATCH BASIN
- VARIABLE DEPTH CATCH BASIN
- INLET STRUCTURE
- SPILLWAY
- HEADWALL
- DRYWELL
- TELEPHONE MANHOLE
- POWER MANHOLE
- SANITARY MANHOLE
- UTILITY MANHOLE
- WATER MANHOLE
- MANHOLE UNKNOWN

ELECTRICAL

- JUNCTION BOX
- UTILITY VAULT
- LAMP STANDARD
- UTILITY KIOSK
- UTILITY PEDESTAL
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROLLER
- UNDERGROUND ELECTRICAL TRANSFORMER

METERS

- VALVE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- STANDPIPE / WATER BLOW OFF
- AIR VALVE
- GAS VALVE
- SERVICE METER

UNDERGROUND

- VENT/BREATHER PIPE
- FILLER CAP
- FUEL / GAS PUMP
- FUEL TANK
- SEPTIC TANK
- UNDERGROUND MARKER (MISC)

ROAD SIGNS

- STANDARD SIGN
- BARRIER MOUNTED DELINEATOR
- RELOCATED OVERHEAD SIGN
- TWO POST SIGN
- TWO POST SIGN (BREAKAWAY)
- STANDARD DAVIT POLE - TYPE 3
- STANDARD COMBINATION POLE - TYPE 1
- HEAVY DUTY DAVIT POLE - TYPE 6
- HEAVY DUTY COMBINATION POLE - TYPE 7
- HEAVY POLE - TYPE H
- HEAVY COMBINATION POLE - TYPE H
- CANTILEVER STRUCTURE
- SIGN BRIDGE STRUCTURE

PATTERNS

- CONCRETE BUS PAD
- ASPHALT PAVEMENT REMOVAL
- FULL DEPTH ASPHALT PAVEMENT OR SIDEWALK CONSTRUCTION
- CONCRETE SIDEWALK

PROPOSED LINE TYPES

FEATURES

- HIGHWAY CONTROL LINE (100+00)
- MINOR CONTROL LINE (100+00)
- CLEARING AND GRUBBING (CL. & GR.)
- PAVEMENT EDGE
- SHOULDER EDGE
- CURB AND GUTTER
- RAISED ISLAND
- SAWCUT
- RUMBLE STRIP
- RETAINING WALL
- FENCE
- TOP OF CUT / BOTTOM OF FILL (TOES) (CUT, C/F, FILL)
- 100mm - YELLOW PAINT LINE (SOLID)
- 100mm - WHITE PAINT LINE (SOLID)
- 100mm - CONTINUITY PAINT LINE (BROKEN) (3, 3)
- 100mm - LANE PAINT LINE (BROKEN) (8, 5, 8)
- CONCRETE BARRIER
- CONCRETE DRAINAGE BARRIER AND/OR RIPRAP OUTFALL (100+00)
- DITCH CENTER / ADDITIONAL DITCHING
- DITCH EDGE

BOUNDARIES

- RIGHT OF WAY
- TEMPORARY LICENCE TO CONSTRUCT (T.L.T.C.)

UTILITIES

- OVERHEAD UTILITY
- PIPELINE (GAS)
- SERVICE LINE (GAS)
- UG ELECTRIC
- UG COMMUNICATION
- STORM SEWER
- SUB DRAIN
- CULVERT
- SANITARY SEWER
- WATER MAIN
- MISCELLANEOUS UNDERGROUND

NOTE: NOT ALL SYMBOLS AND LINE TYPES ILLUSTRATED IN THIS LEGEND ARE UTILIZED IN THE FOLLOWING DESIGN

ISSUED FOR
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BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE

CAD FILENAME 000_COV_H7B BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

LEGEND

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-002	

PLOT DATE: 2024-05-01 5:21:31 PM| yke |U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\000_CoverKeyPlanLegend\000_COV _ H7B BROADWAY.dwg

DISTRICT LOT 231
NEW WESTMINSTER DISTRICT

MARY HILL BYPASS
HWY 7B

BROADWAY ST

HIGHWAY SRW PLAN NWP62990

L100-BROADWAY WB BS
R 3000.000 Lt
Δ 2°02'56"
Tc 53.644
Arc 107.276
Ec 0.480

L200-BROADWAY EB BS
R 1500.000 Lt
Δ 1°59'13"
Tc 26.010
Arc 52.015
Ec 0.225

L100-BROADWAY WB BS
R 2235.000 Rt
Δ 2°03'53"
Tc 40.277
Arc 80.545
Ec 0.363

LIMIT OF CONSTRUCTION
POT 100+00

POT 100+09.540
TIE TO EXISTING
N 454203.891
E 517256.957

POT 201+07.870
TIE TO EXISTING
N 454426.579
E 517254.2

POT 103+57.433
TIE TO EXISTING
N 454552.444
E 517529.165

POT 203+30.019

BC 101+62.262
EC 102+69.538
BC 103+18.898
EC 103+99.442
BC 201+84.609
EC 202+36.625
POT 202+63.948
TIE TO EXISTING
N 454343.970
E 517489.124

REMOVE EXISTING SIGN
REMOVE EXISTING CURB AND GUTTER AND SIDEWALK
SAW CUT
REMOVE AND REPLACE EXISTING LAMP STANDARD
REMOVE EXISTING BARRIER
TOES
PROTECT EXISTING UNDERGROUND UTILITIES
CLEAR AND GRUB LINE
REMOVE AND REPLACE EXISTING LAMP STANDARD
PROTECT EXISTING GAS LINE THROUGHOUT CONSTRUCTION
EXISTING WATER/GAS VALVE TO BE PROTECTED THROUGHOUT CONSTRUCTION
RELOCATE EXISTING SIGN
TIE CRB TO EXISTING
REMOVE EXISTING 30 km/h SIGN
CONCRETE BUS PAD (TYP)
COMBINED CURB & GUTTER (TYP)
RELOCATE EXISTING SIGN
PROTECT EX. W/M AND U/E DURING RETAINING WALL CONSTRUCTION (TYP.)
REMOVE EXISTING BARRIER
REMOVE EXISTING LAMP STANDARD WITH SIGN
RELOCATE EXISTING SIGN
RELOCATE EXISTING SIGN
REMOVE EXISTING CURB AND GUTTER AND SIDEWALK
TOES
CLEAR AND GRUB LINE
REMOVE EXISTING BUS STOP SIGN
EXISTING BARRIER TO REMAIN
TIE CRB TO EXISTING BARRIER

#1435 BROADWAY STREET
#1438 BROADWAY STREET
#1467 SPITFIRE PLACE
#1502 BROADWAY STREET
#1515 BROADWAY STREET
#1522 BROADWAY STREET
#1589 KEBET WAY

PLAN LMP35769
STRATA PLAN LMS3013
#1515 BROADWAY STREET
SRW PLAN LMP33765
SRW PLAN LMP33766
PLAN NWP21441
SRW PLAN LMP3136
EASEMENT PLAN NWP82632
SRW PLAN NWP76469
SRW PLAN NWP23819
REM LOT 24 PLAN NWP79765 012-428-639
PARCEL A PLAN 305 018-931
LOT 1 PLAN LMP817 017-406-544
LOT 2 PLAN LMP817 017-406-561
LOT 20 PLAN NWP76579 009-336-991
LOT 37 PLAN NWP86606 016-414-292
LOT 26 PLAN NWP78962 011-918-870
SRW PLAN NWP22618
SRW PLAN NWP24181

P5189-23 N. 454385.283 E. 517481.933 Z. 2.939 REBAR
P5186-23 N. 454441.855 E. 517551.792 Z. 2.957 REBAR
P5195-23 N. 454229.291 E. 517333.572 Z. 3.289 REBAR
P5187-23 N. 454417.916 E. 517447.182 Z. 3.024 REBAR
P5188-23 N. 454295.871 E. 517394.341 Z. 3.241 REBAR
G5171-23 N. 454279.550 E. 517338.899 Z. 2.974 REBAR

LEGEND

CONCRETE BUS PAD	
ASPHALT PAVEMENT REMOVAL	
FULL DEPTH ASPHALT PAVEMENT OR SIDEWALK CONSTRUCTION	
CONCRETE SIDEWALK	

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1009

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PROFILES SEE DWG R1-XXXX-201 TO R1-XXXX-202

CLEARING AND GRUBBING TOTAL THIS SHEET: 1436.50m²

THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY AND PREDOMINATELY BASED ON AS-BUILT INFORMATION. THE CONTRACTOR WILL CONFIRM THE FIELD LOCATIONS OF THESE UTILITIES WITH THE UTILITY STAKEHOLDER.

ISSUED FOR
50% DETAILED DESIGN
2024-05-01
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BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 5 1:500 25m

CAD FILENAME 100_PLANS_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

PLAN

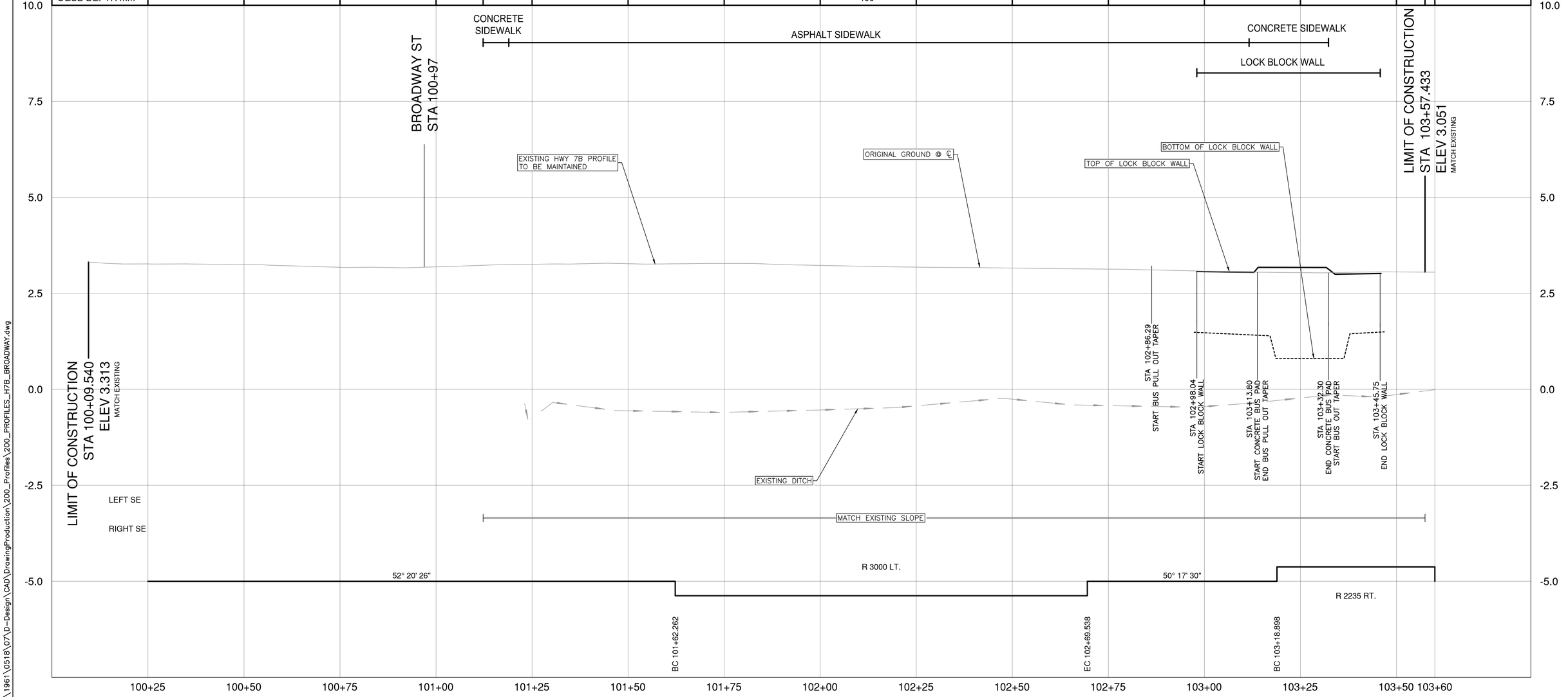
HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-101	

PLOT DATE: 2024-05-01 5:21:53 PM yke U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\100_Plans\100_PLANS_H7B_BROADWAY.dwg

EXCAVATION m³									195								
EMBANKMENT m³									67								
STRIPPING m³									360								
SGSB DEPTH mm									400								



L100-BROADWAY ST WB

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1009

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PLANS SEE DWG R1-XXXX-101

DESIGN SPEED L100 LINE - 60 km/h

THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY AND PREDOMINATELY BASED ON AS-BUILT INFORMATION. THE CONTRACTOR WILL CONFIRM THE FIELD LOCATIONS OF THESE UTILITIES WITH THE UTILITY STAKEHOLDER.

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URBAN SYSTEMS

SCALE 0 5 H 1:500 25m / 0 0.5 V 1:50 2.5m

CAD FILENAME 200_PROFILES_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

PROFILE

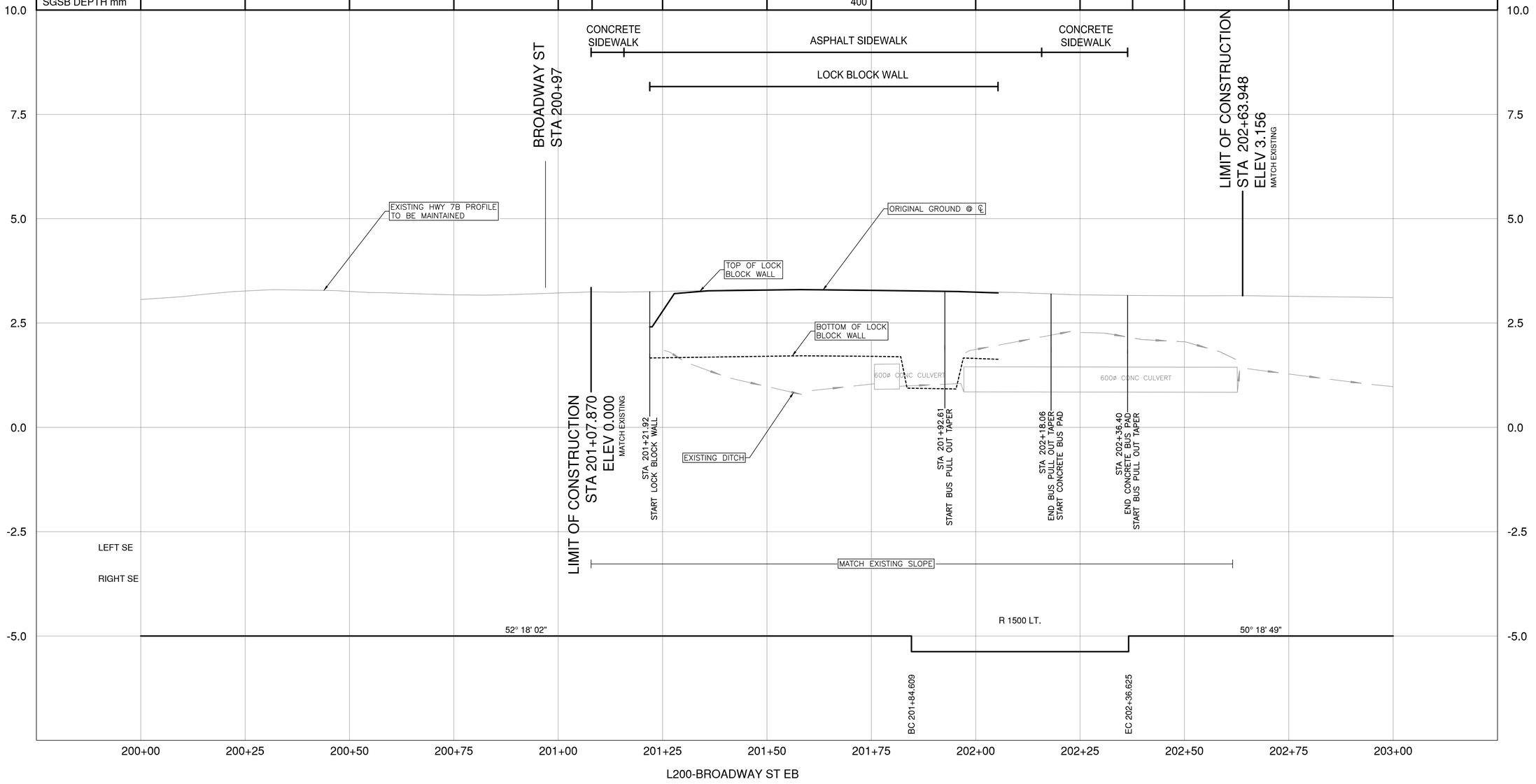
HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION
L100 - BROADWAY WB

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-201	----

PLOT DATE: 2024-05-01 5:22:07 PM yke U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\200_Profiles\200_PROFILES_H7B_BROADWAY.dwg

EXCAVATION m³								95								
EMBANKMENT m³								65								
STRIPPING m³								135								
SGSB DEPTH mm								400								



L200-BROADWAY ST EB

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1009

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PLANS SEE DWG R1-XXXX-101

DESIGN SPEED L200 LINE - 60 km/h

THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY AND PREDOMINATELY BASED ON AS-BUILT INFORMATION. THE CONTRACTOR WILL CONFIRM THE FIELD LOCATIONS OF THESE UTILITIES WITH THE UTILITY STAKEHOLDER.

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2024-05-01
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URBAN SYSTEMS

SCALE 0 5 H 1:500 25m
0 0.5 V 1:50 2.5m

CAD FILENAME 200_PROFILES_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

PROFILE

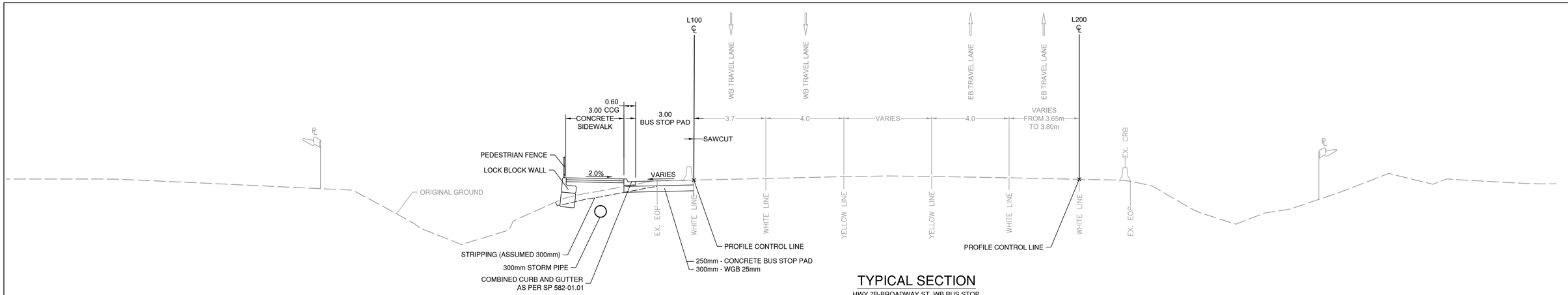
HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

L200 - BROADWAY EB

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

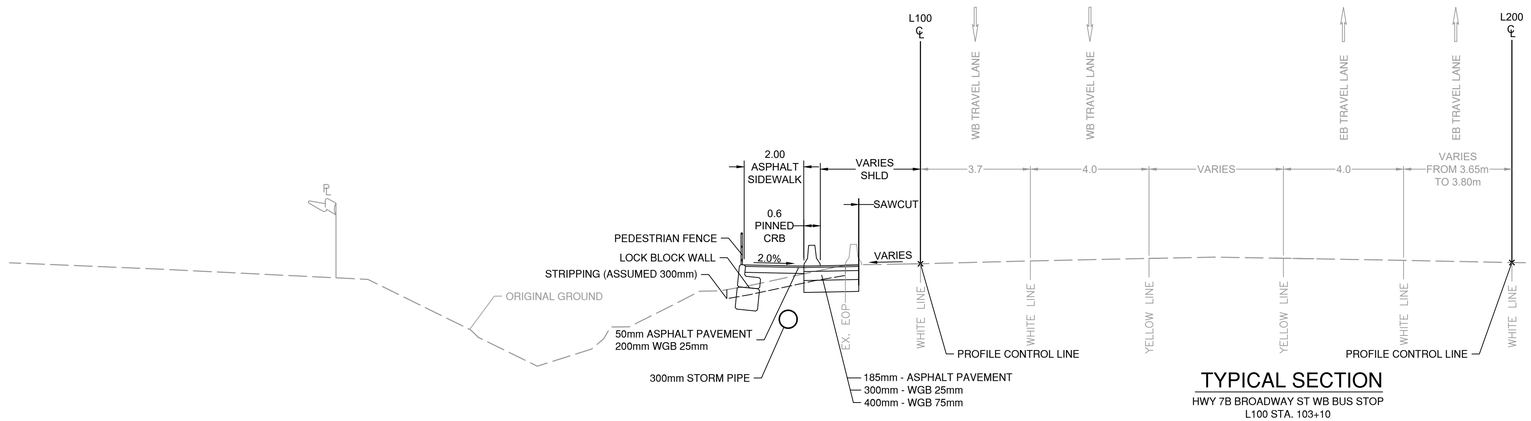
PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-202	

PLOT DATE: 2024-05-01 5:22:09 PM yke U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\200_Profiles\200_



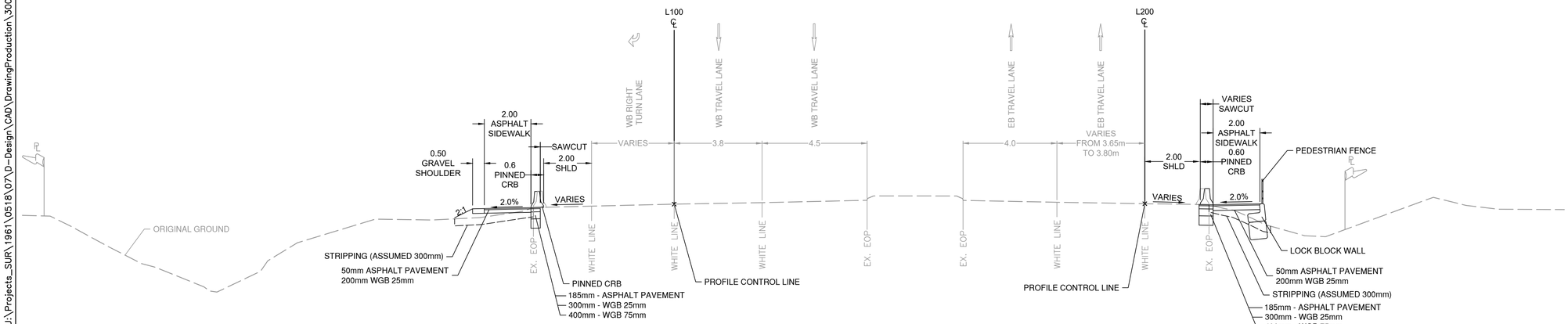
TYPICAL SECTION

HWY 7B-BROADWAY ST WB BUS STOP
L100 STA. 103+20



TYPICAL SECTION

HWY 7B BROADWAY ST WB BUS STOP
L100 STA. 103+10



TYPICAL SECTION

HW 7B BROADWAY ST BUS STOP
L100 STA. 102+00

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URBAN SYSTEMS

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 300_TYPICALS_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-04-28

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

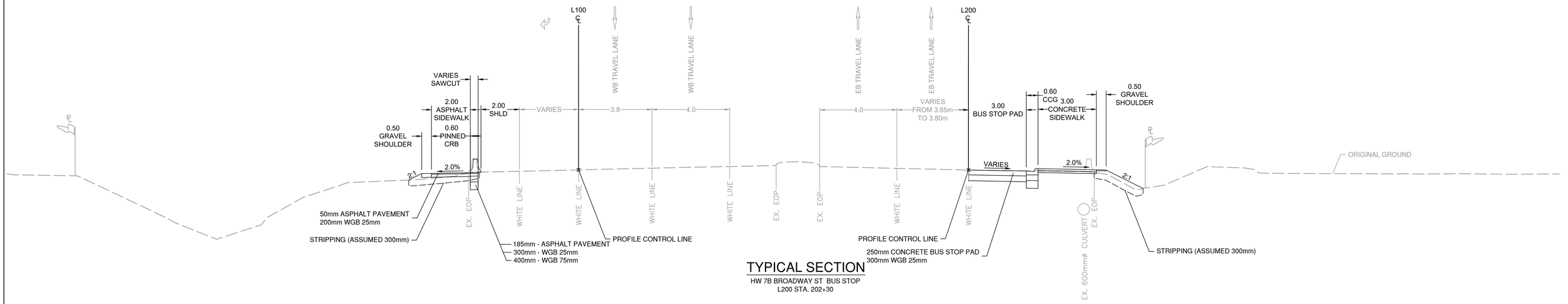
TYPICAL SECTIONS

HIGHWAY 7B
BROADWAY ST BUS STOP

SCALE 0 1 1:100 5m

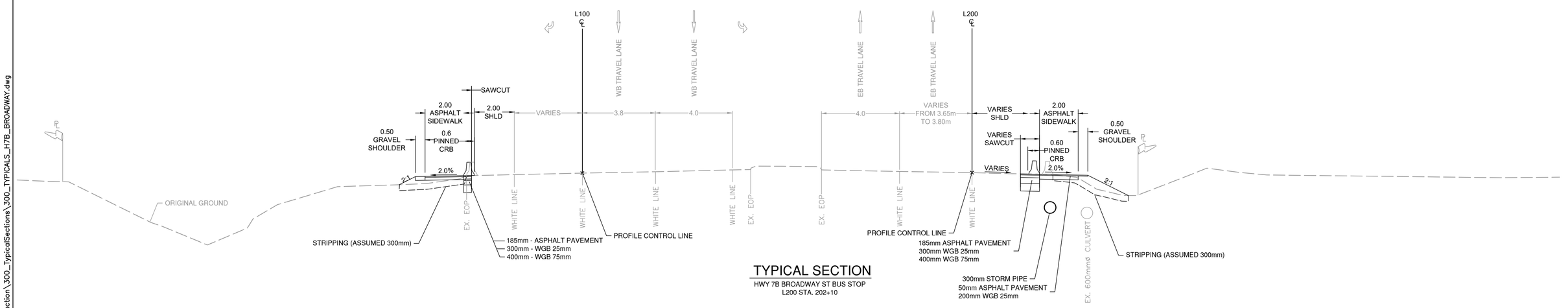
PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-301	----

PLOT DATE: 2024-05-01 5:22:17 PM yke U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\300_TypicalSections\300_TYPICALS_H7B_BROADWAY.dwg



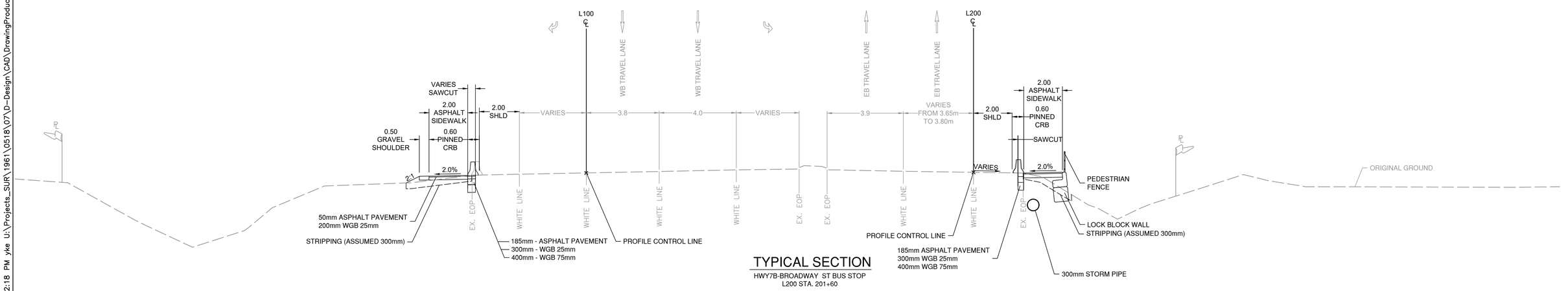
TYPICAL SECTION

HW 7B BROADWAY ST BUS STOP
L200 STA. 202+30



TYPICAL SECTION

HWY 7B BROADWAY ST BUS STOP
L200 STA. 202+10



TYPICAL SECTION

HWY7B-BROADWAY ST BUS STOP
L200 STA. 201+60

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50% DETAILED DESIGN
2024-05-01
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URBAN SYSTEMS

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 300_TYPICALS_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

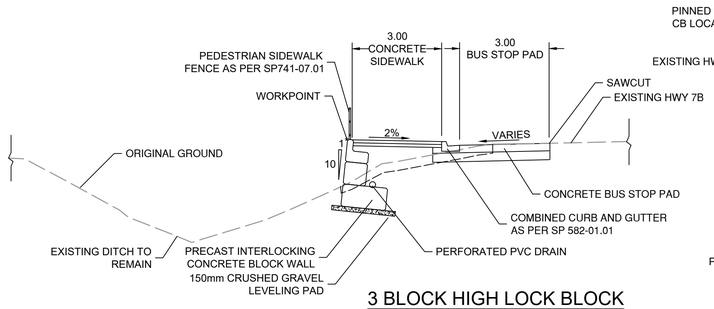
TYPICAL SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

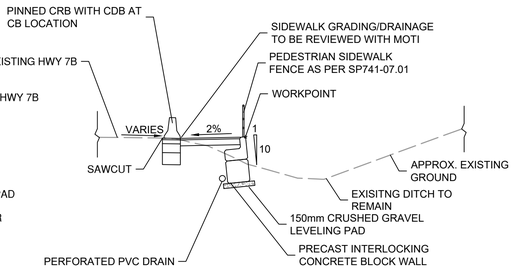
PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-302	----

PLOT DATE: 2024-05-01 5:22:18 PM yke U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\300_TypicalSections\300_TYPICALS_H7B_BROADWAY.dwg



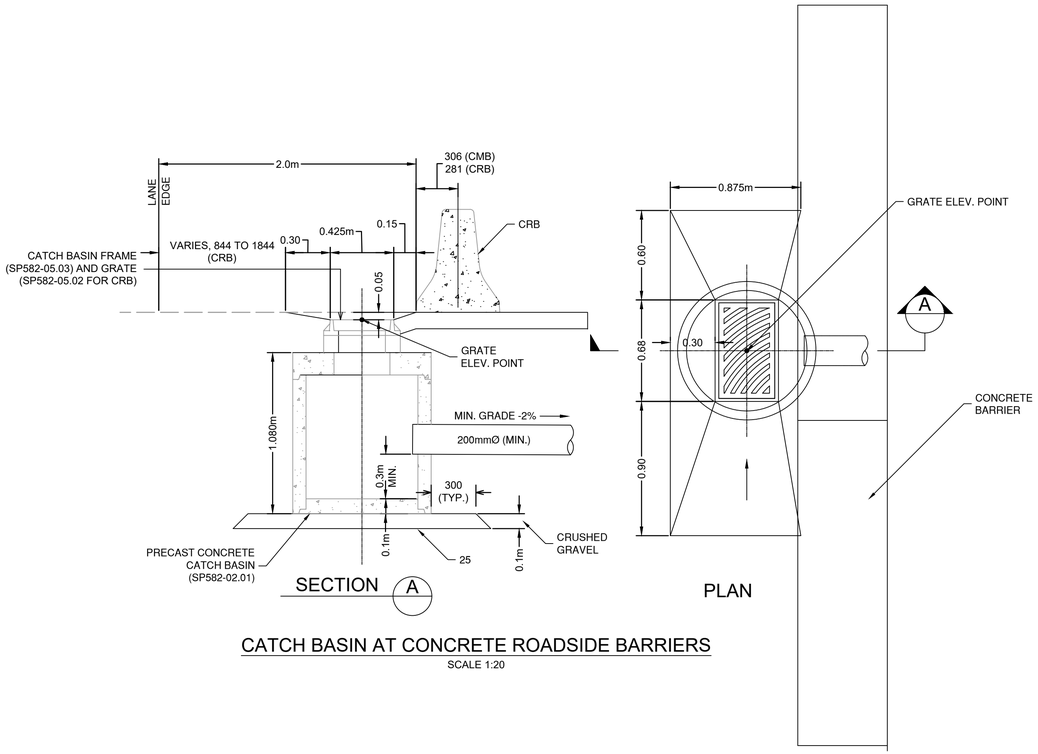
3 BLOCK HIGH LOCK BLOCK WALL DETAIL (TYPICAL)

NTS



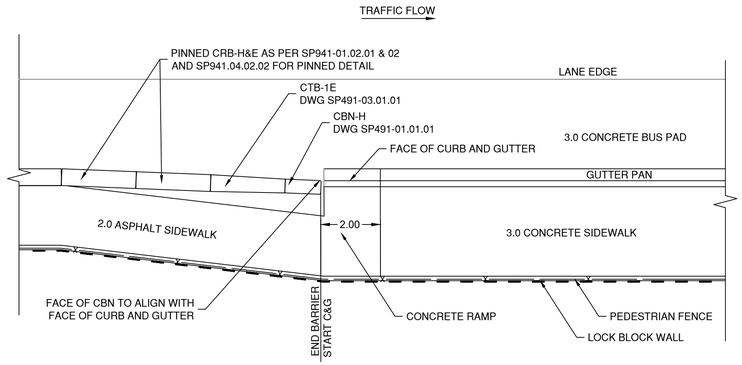
2 BLOCK HIGH LOCK BLOCK WALL DETAIL (TYPICAL)

NTS



CATCH BASIN AT CONCRETE ROADSIDE BARRIERS

SCALE 1:20



TYPICAL CRB TERMINAL DETAIL WITH CURB & GUTTER AT BUS STOP

NTS

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SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 300_TYPICALS_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DETAILS

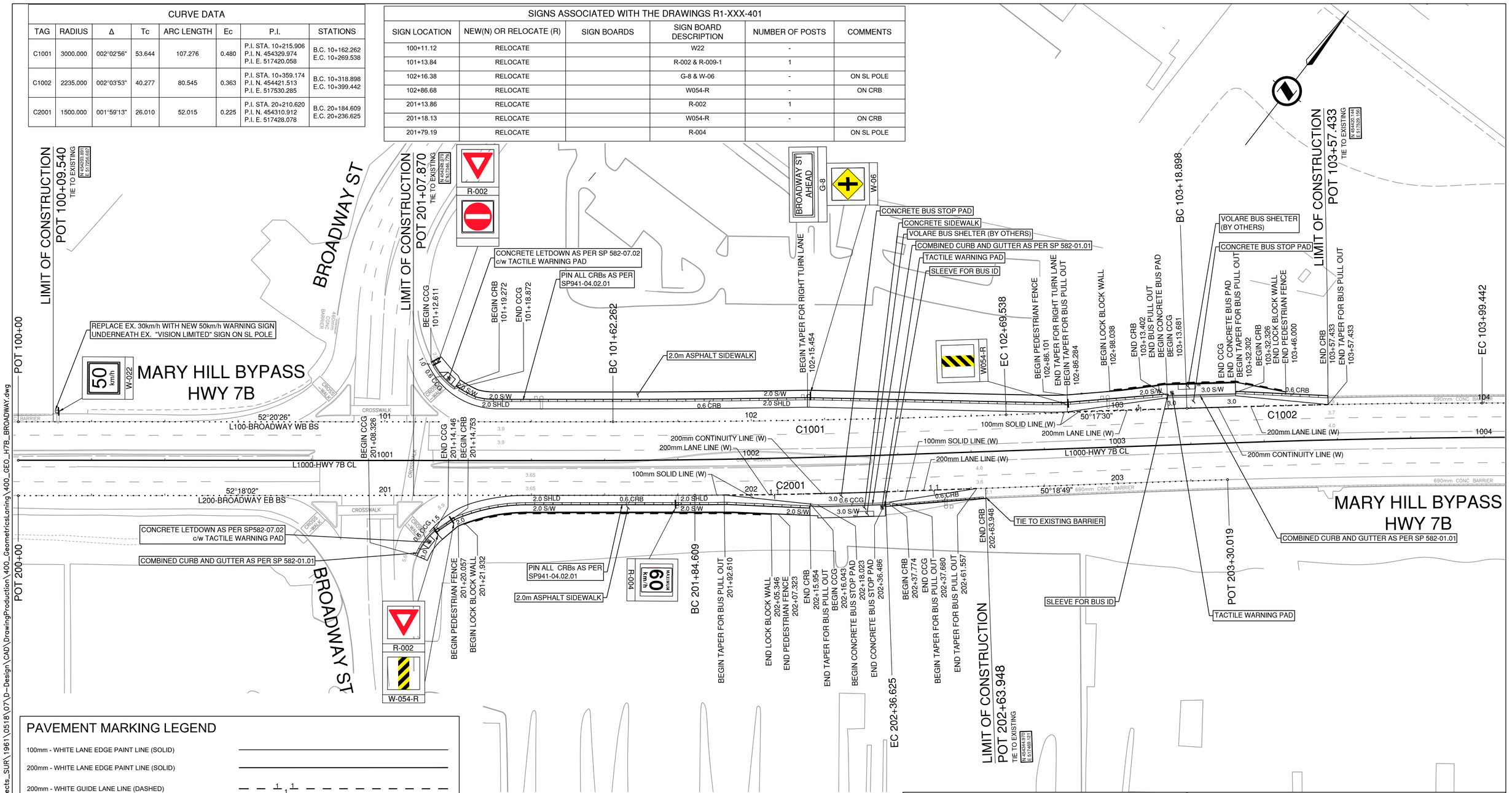
HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE	PROJECT NUMBER	REG	DRAWING NUMBER	REV
	13234-0001	1	R1-XXXX-303	----

PLOT DATE: 2024-05-01 5:22:20 PM yke U:\Projects_SUR\1961\0518\07\D-Design\CAD\DrawingProduction\300_TypicalSections\300_TYPICALS_H7B_BROADWAY.dwg

CURVE DATA							
TAG	RADIUS	Δ	Tc	ARC LENGTH	Ec	P.I.	STATIONS
C1001	3000.000	002°02'56"	53.644	107.276	0.480	P.I. STA. 10+215.906 P.I. N. 454329.974 P.I. E. 517420.058	B.C. 10+162.262 E.C. 10+269.538
C1002	2235.000	002°03'53"	40.277	80.545	0.363	P.I. STA. 10+359.174 P.I. N. 454421.513 P.I. E. 517530.285	B.C. 10+318.898 E.C. 10+399.442
C2001	1500.000	001°59'13"	26.010	52.015	0.225	P.I. STA. 20+210.620 P.I. N. 454310.912 P.I. E. 517428.078	B.C. 20+184.609 E.C. 20+236.625

SIGNS ASSOCIATED WITH THE DRAWINGS R1-XXX-401					
SIGN LOCATION	NEW(N) OR RELOCATE (R)	SIGN BOARDS	SIGN BOARD DESCRIPTION	NUMBER OF POSTS	COMMENTS
100+11.12	RELOCATE		W22	-	
101+13.84	RELOCATE		R-002 & R-009-1	1	
102+16.38	RELOCATE		G-8 & W-06	-	ON SL POLE
102+86.68	RELOCATE		W054-R	-	ON CRB
201+13.86	RELOCATE		R-002	1	
201+18.13	RELOCATE		W054-R	-	ON CRB
201+79.19	RELOCATE		R-004		ON SL POLE



PAVEMENT MARKING LEGEND

100mm - WHITE LANE EDGE PAINT LINE (SOLID)

200mm - WHITE LANE EDGE PAINT LINE (SOLID)

200mm - WHITE GUIDE LANE LINE (DASHED)

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1002

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR SPOT ELEVATIONS SEE DWG R1-XXXX-501

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PROFILES SEE DWG R1-XXXX-201 TO R1-XXXX-202

FOR PLANS SEE DWG R1-XXXX-101

GENERAL NOTES

1. ALL SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE BC MOTI MANUAL OF STANDARD TRAFFIC SIGNS & PAVEMENT MARKINGS AND / OR THE CATALOGUE OF STANDARD SIGNS, WHICHEVER SIGN CODE IS MORE CURRENT.
2. EXISTING SIGNS TO REMAIN UNLESS NOTED OTHERWISE.
3. WHERE SIGNAL ARM IS MOVED, RELOCATE SIGN ALREADY ON ARM ALONG WITH THE SIGNAL ARM.
4. ERADICATE EXISTING PAVEMENT MARKING IN CONFLICT WITH THE PROPOSED WORKS SHOWN ON SIGNING AND PAVEMENT MARKING DRAWINGS.
5. STOP BAR & CROSSWALKS TO BE THERMOPLASTIC.

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HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 5 1:500 25m

CAD FILENAME 400_GEO_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

GEOMETRICS & LANING - SINGING & PAVEMENT MARKING

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-401	----

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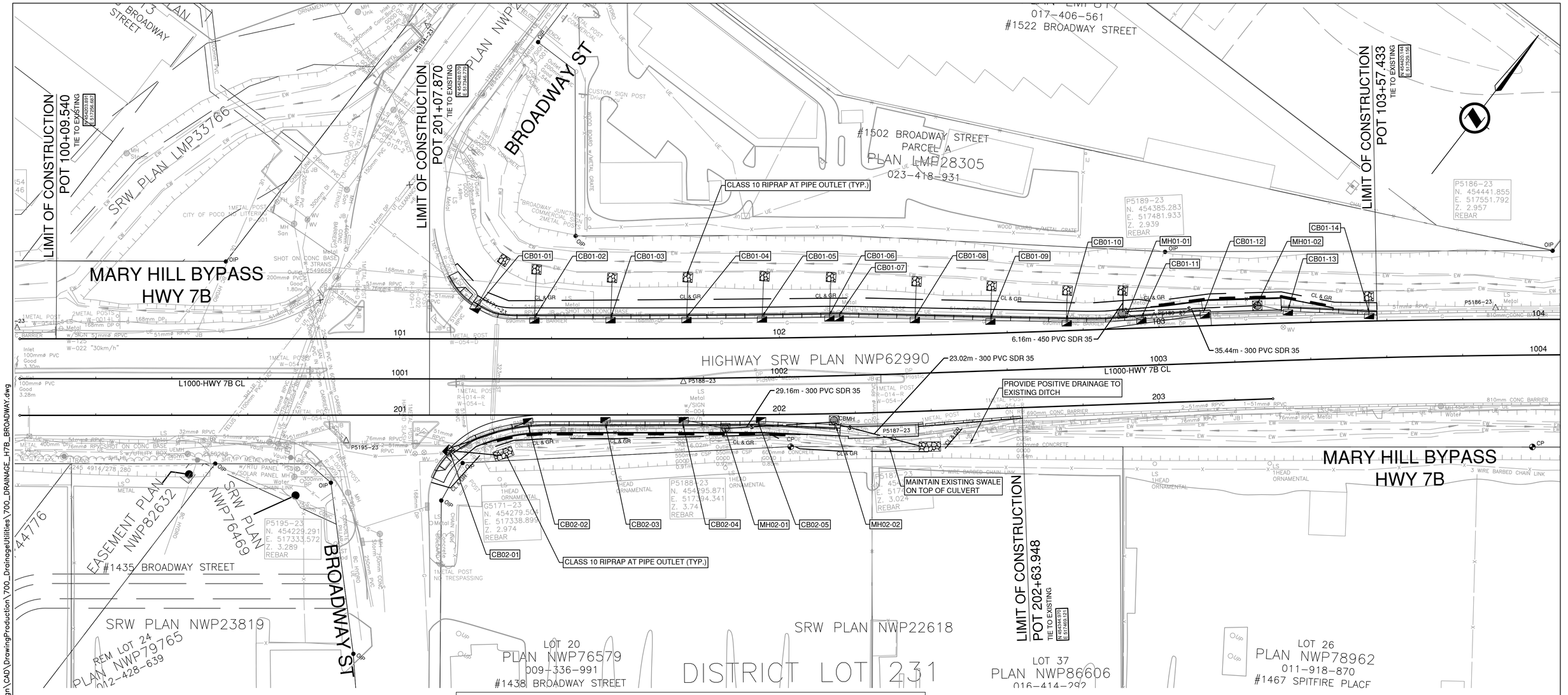

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CATCH BASIN NOTES:

1. THE LOCATION OF THE CATCH BASINS IN RELATION TO CURB AND GUTTER SHALL BE AS SHOWN ON STANDARD DRAWING SP582-05.05.
2. ELEVATIONS GIVEN IN THE TABLES ON THIS DRAWING ARE AT BACK OF CATCH BASIN FRAME RECESSED 40mm BELOW PROPOSED GROUND ELEVATION.
3. DIGITAL DRAWING INFORMATION SHALL NOT BE USED TO OBTAIN COORDINATES FOR THE LAYOUT OF CATCH BASINS. (CATCH BASIN SYMBOL SIZE IS NOT TRUE TO SCALE).
4. CATCH BASIN LEAD PIPE LENGTHS ARE APPROXIMATE ONLY. PAYMENT WILL BE MADE ONLY FOR ACTUAL LENGTHS MEASURED DURING CONSTRUCTION.
5. TEE OR WYE FITTINGS SHALL BE USED TO CONNECT CATCH BASIN LEAD PIPES TO TRUNK LINE IN ABSENCE OF MANHOLE.
6. OUTLET PIPES MAY HAVE TO BE FIELD DETERMINED WITH BENDS AND FITTINGS USED ON CATCH BASIN LEAD PIPES.

FOR DESIGN SECTIONS SEE DWG
R1-XXXX-1001 TO R1-XXXX-1009

FOR GEOMETRICS & LANING - SIGNING
& PAVEMENT MARKING SEE DWG
R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG
R1-XXXX-301 TO R1-XXXX-303

FOR PROFILES SEE DWG
R1-XXXX-201 TO R1-XXXX-202

FOR PLANS SEE DWG
R1-XXXX-101

CATCH BASIN TABLE

NAME	STATION	SIDE	OFFSET(m)	RIM ELEV.(m)	INVERT(M)	CB LEAD	CB TYPE	GRATE TYPE
CB01-01	101+19.864	LT	-7.96	2.98		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
CB01-02	101+35.495	LT	-4.83	3.10		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
CB01-03	101+55.546	LT	-4.89	3.12		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-04	101+75.565	LT	-4.92	3.10		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-05	101+95.484	LT	-4.94	3.06		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-06	102+13.251	LT	-4.95	3.04		250ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-07	102+15.755	LT	-4.91	3.04		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-08	102+35.776	LT	-4.06	3.03		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-09	102+55.672	LT	-3.08	3.03		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-10	102+75.756	LT	-1.95	3.04		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
MH01-01	102+90.403	LT	-4.03	2.85				
CB01-11	102+95.426	LT	-2.02	3.01		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-12	103+12.177	LT	-2.78	2.85		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
MH01-02	103+26.034	LT	-4.81	2.50				
CB01-13	103+34.050	LT	-2.80	2.82		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB01-14	103+55.390	LT	-1.31	2.98		200ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB02-01	201+12.655	RT	9.20	2.84		250ø PVC	SP582 02.05*	SP582 05.02 TYPE "B" L
CB02-02	201+33.818	RT	1.65	3.20		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
CB02-03	201+54.185	RT	1.39	3.23		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
CB02-04	201+74.827	RT	1.40	3.21		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
MH02-01	201+85.769	RT	3.54	2.93				
CB02-05	201+95.149	RT	1.44	3.19		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
MH02-02	202+14.566	RT	1.97	3.12				

* CB TO BE CAST IRON CATCH BASIN AND ADAPTOR PLATE AS PER SP582-02.05, MOTI TO ADVISE ON PREFERRED SPECIFICATION

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HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 5 1:500 25m

CAD FILENAME 700_DRAINAGE_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

DRAINAGE

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
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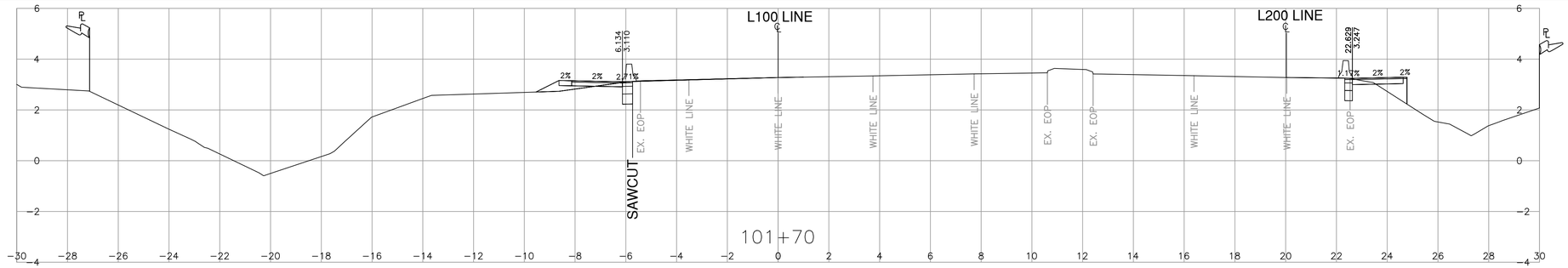

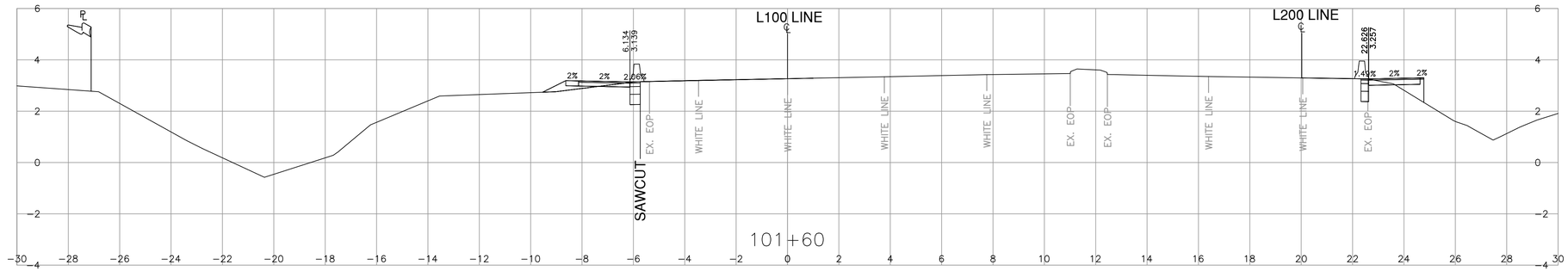

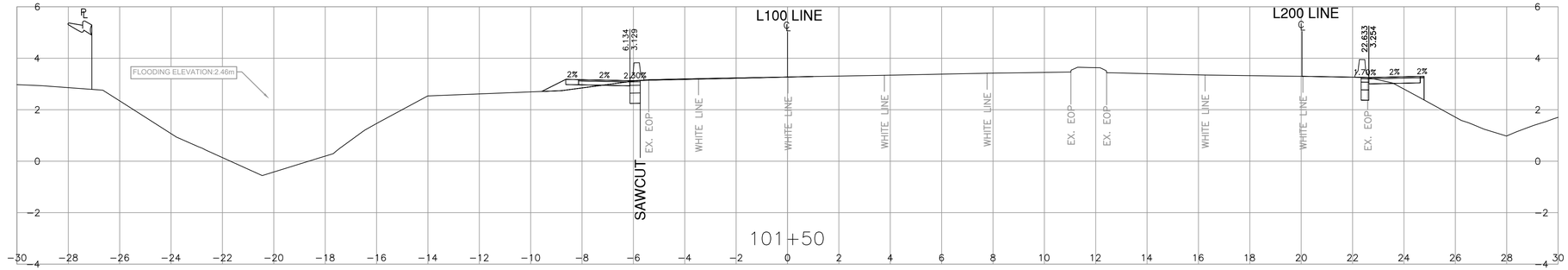

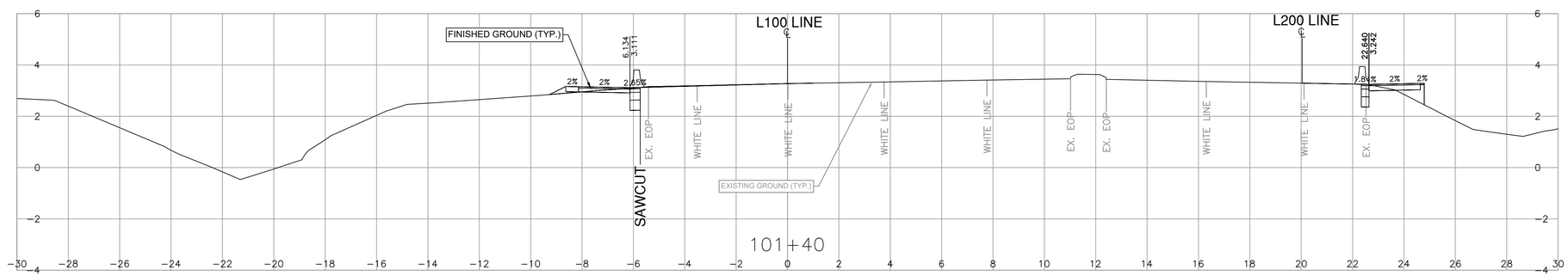

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SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 1000_X-SEC_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

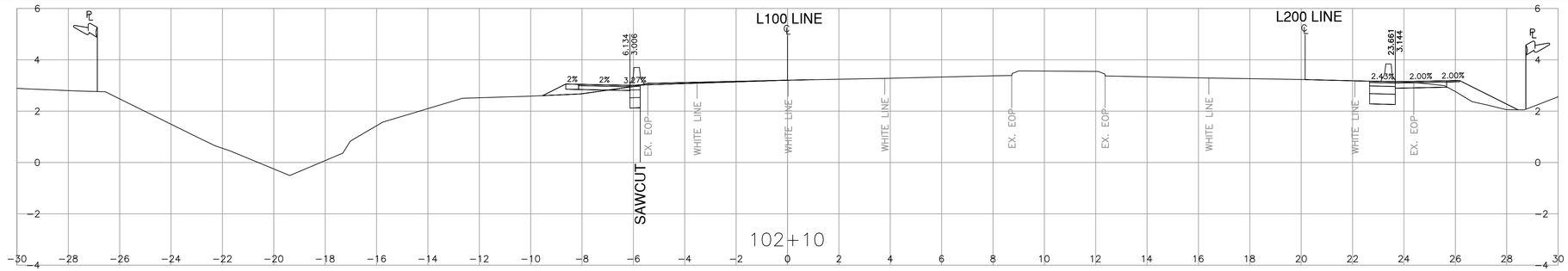
DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

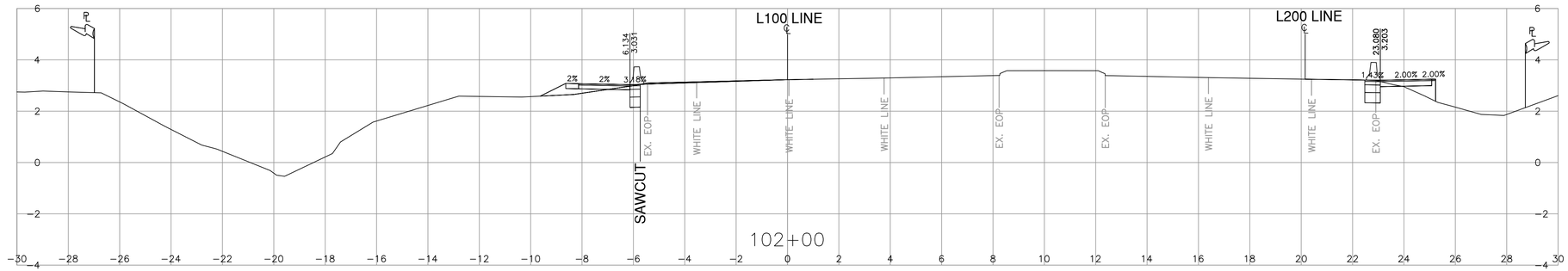
DESIGN SECTIONS

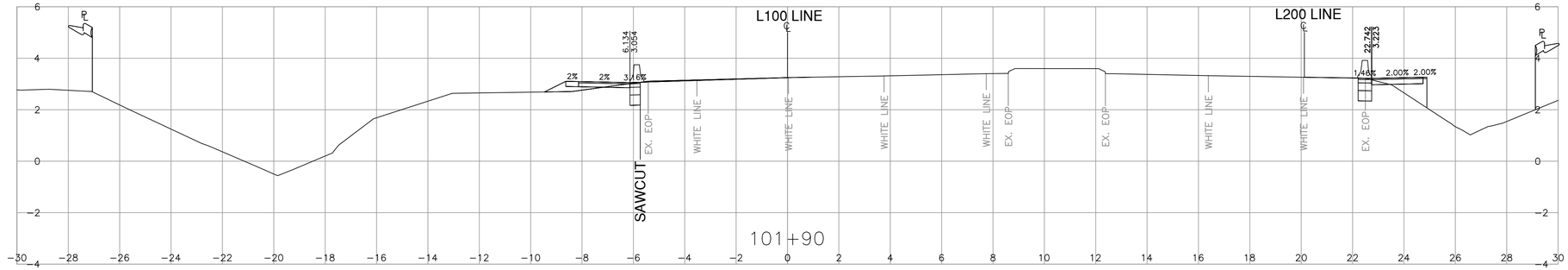
HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

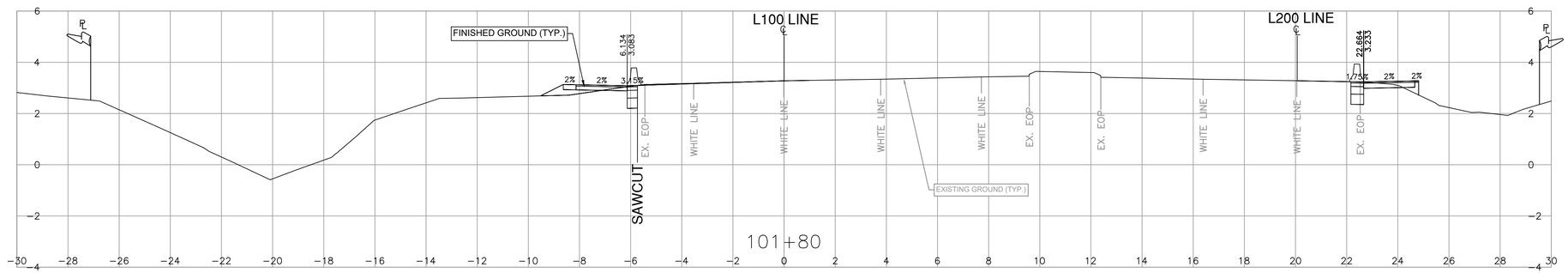
SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1001	----









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SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 1000_X-SEC_H7B_BROADWAY
FILE NUMBER 1961.0518.07
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DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1002	----

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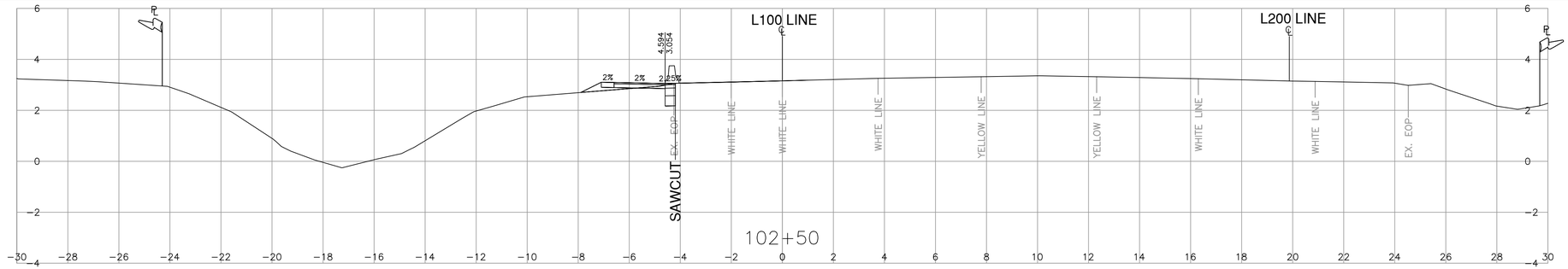

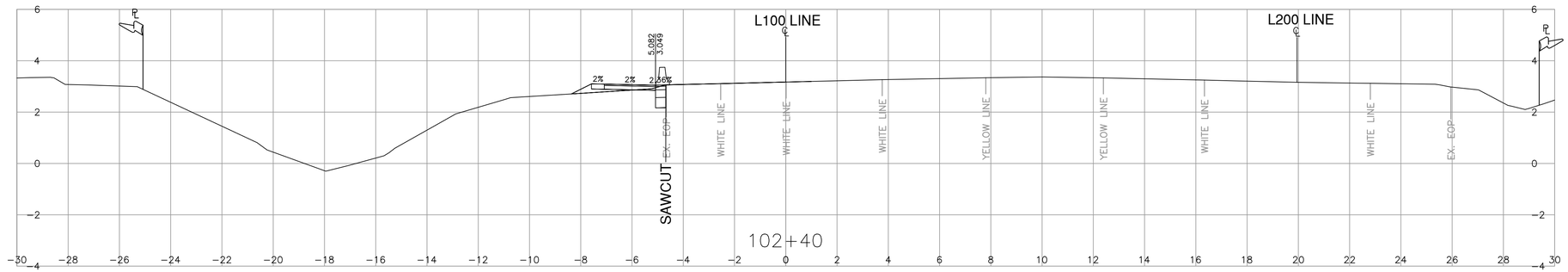

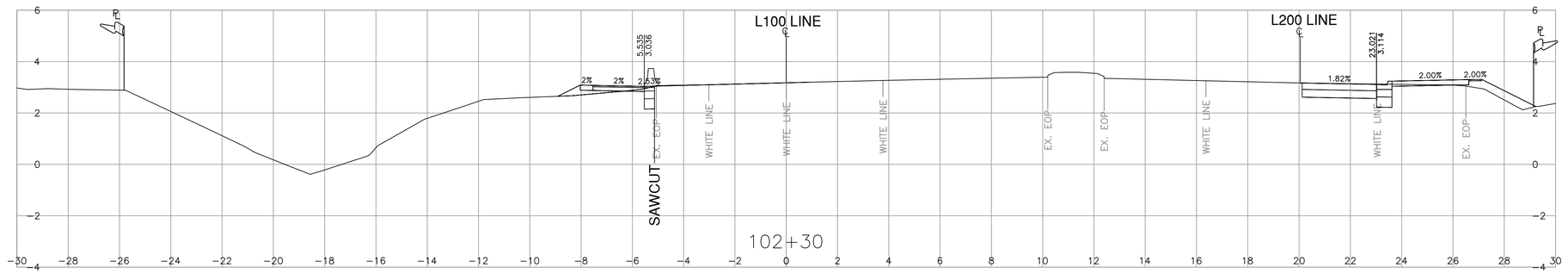

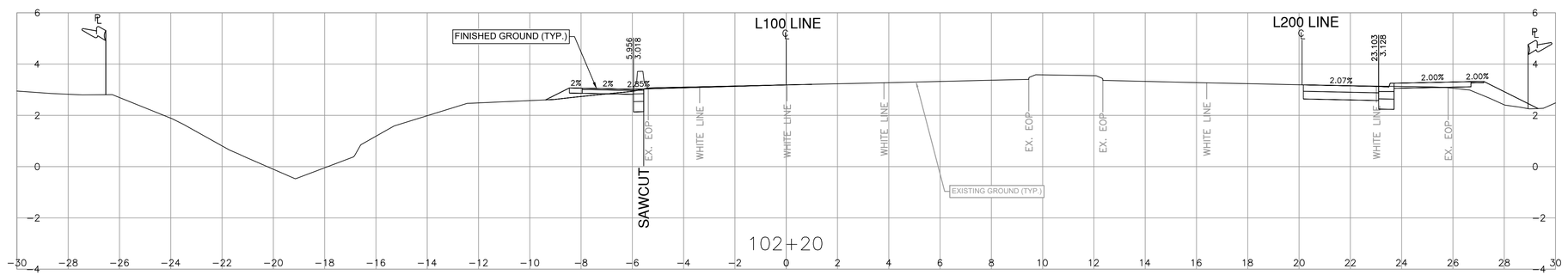

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REV	DATE	REVISIONS	NAME

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SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 1000_X-SEC_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
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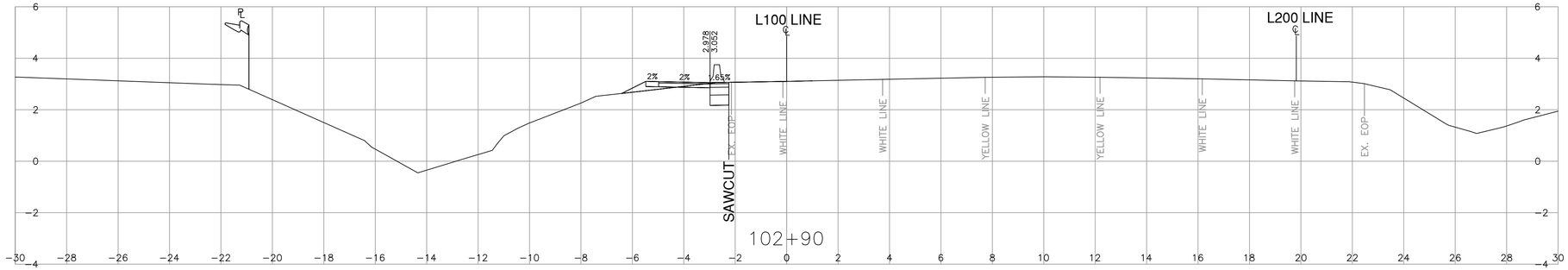

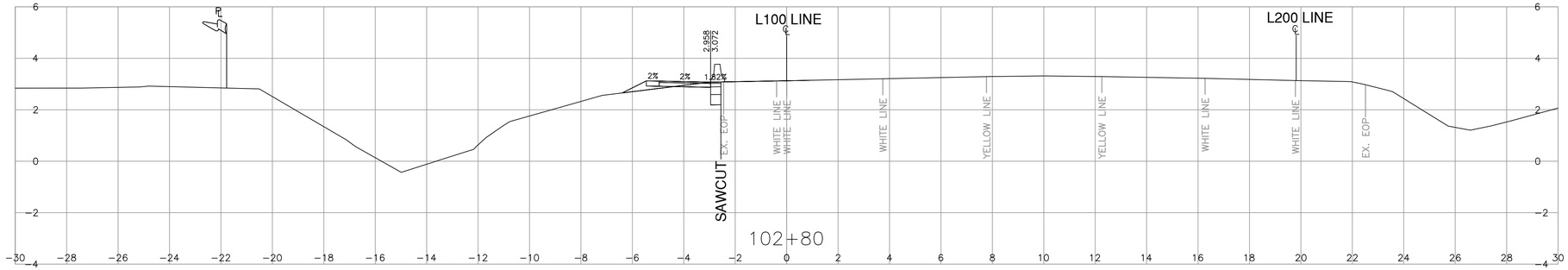

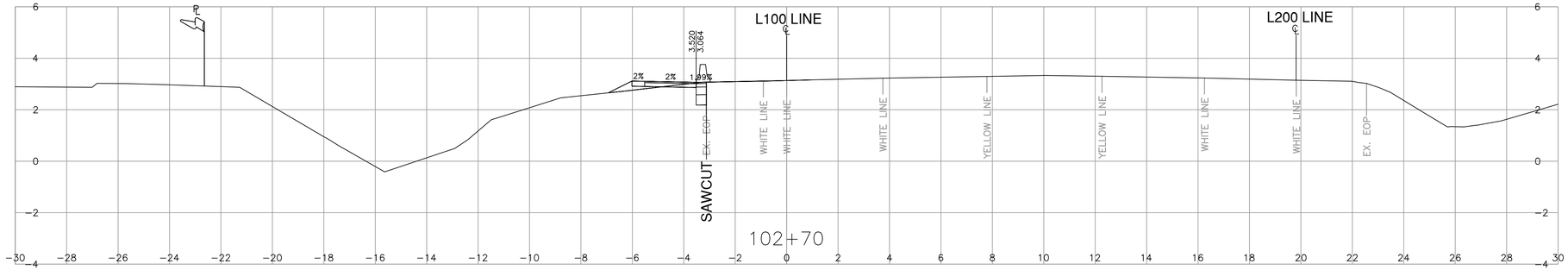

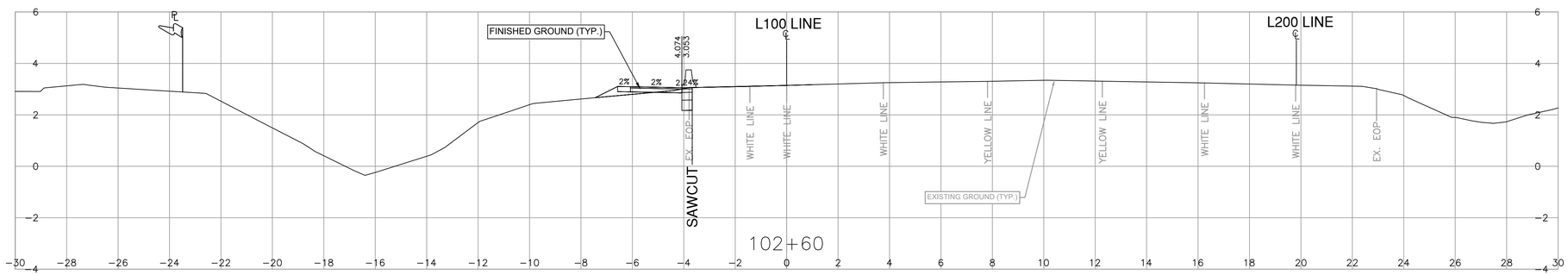

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MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

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DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1004	----

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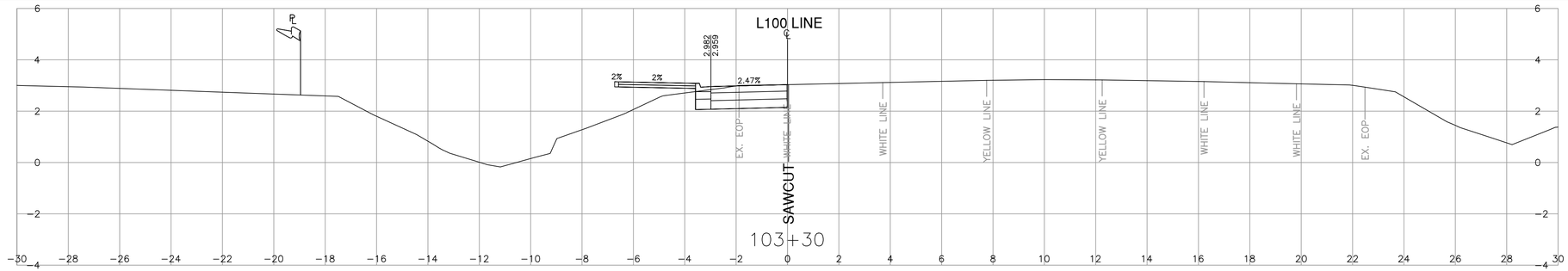

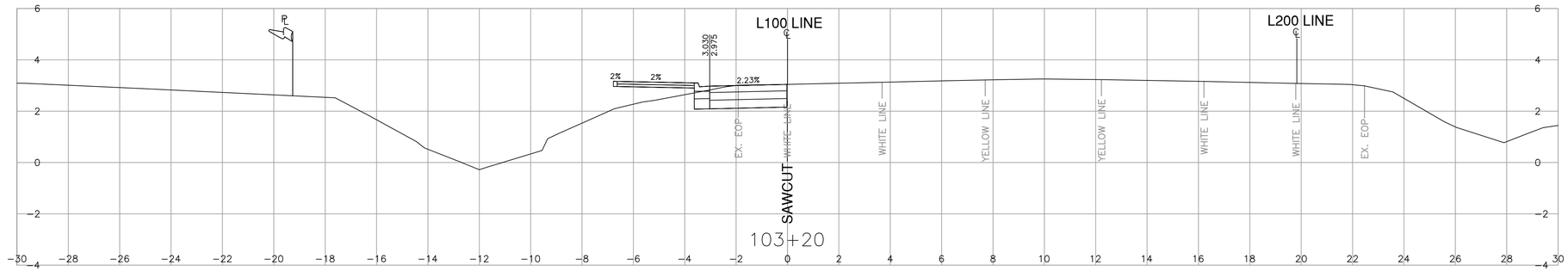

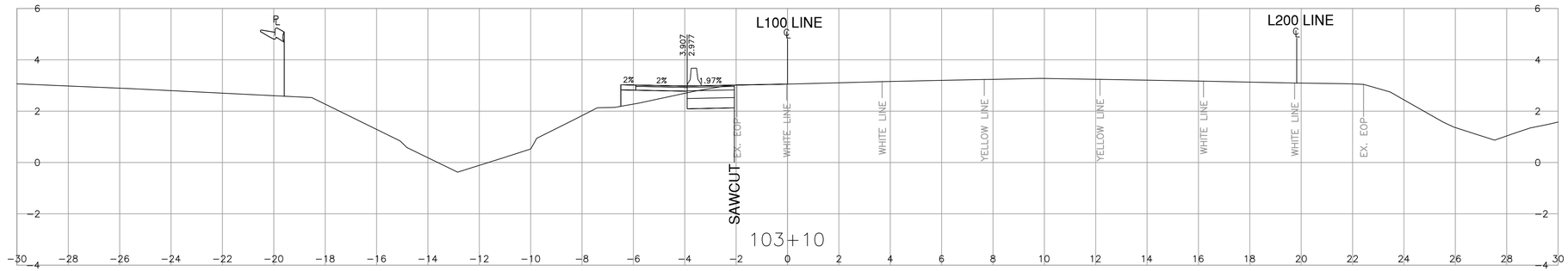

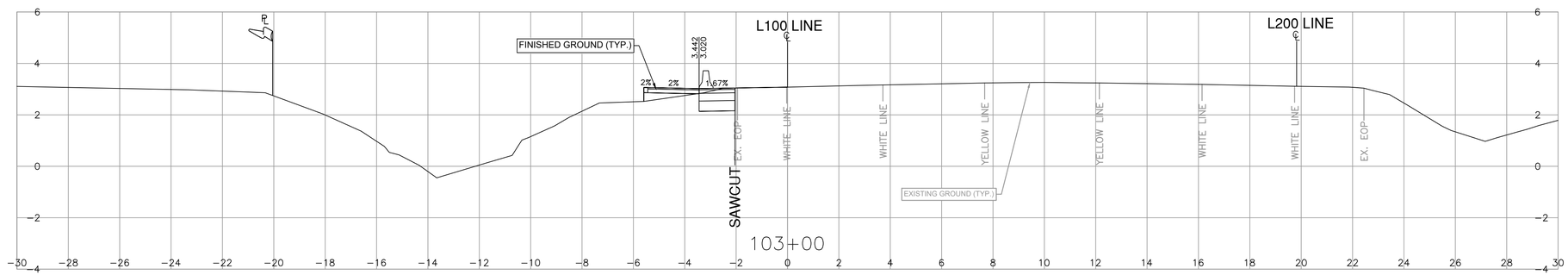

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URBAN SYSTEMS

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME 1000_X-SEC_H7B_BROADWAY
FILE NUMBER 1961.0518.07
PLOT DATE 2024-05-01

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1005	----

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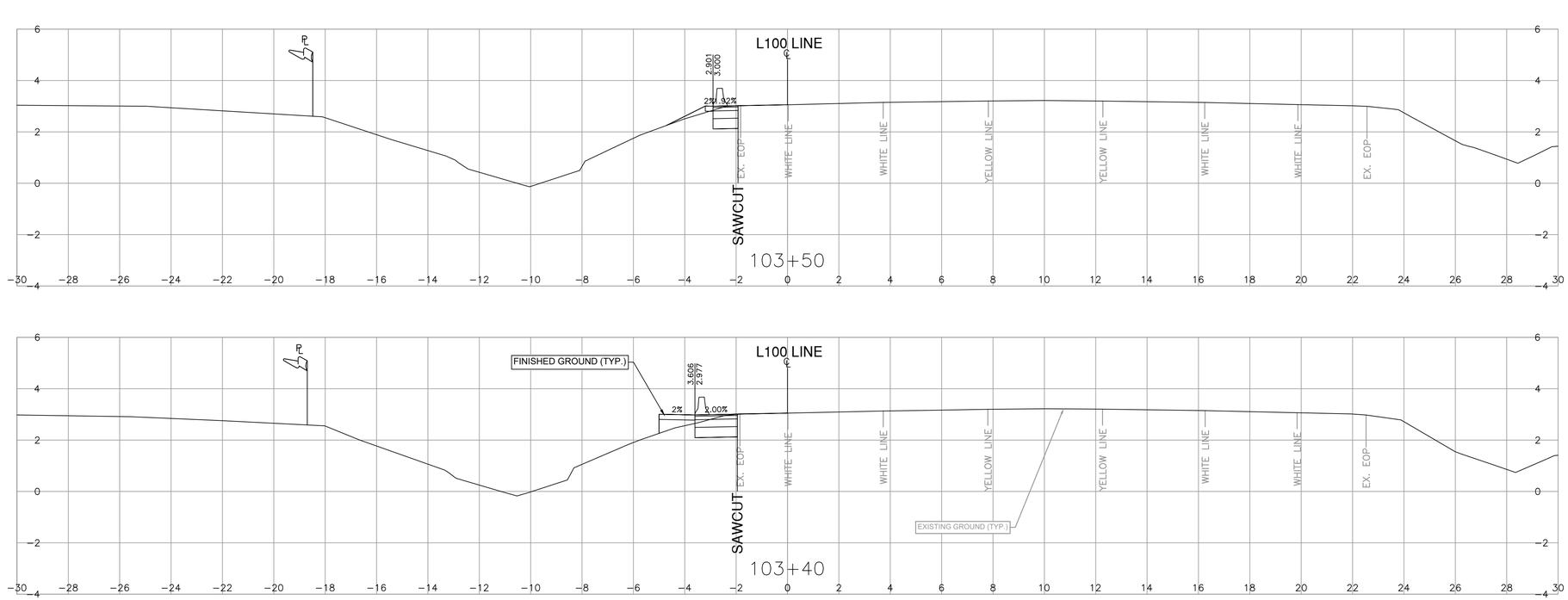

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DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1006	----

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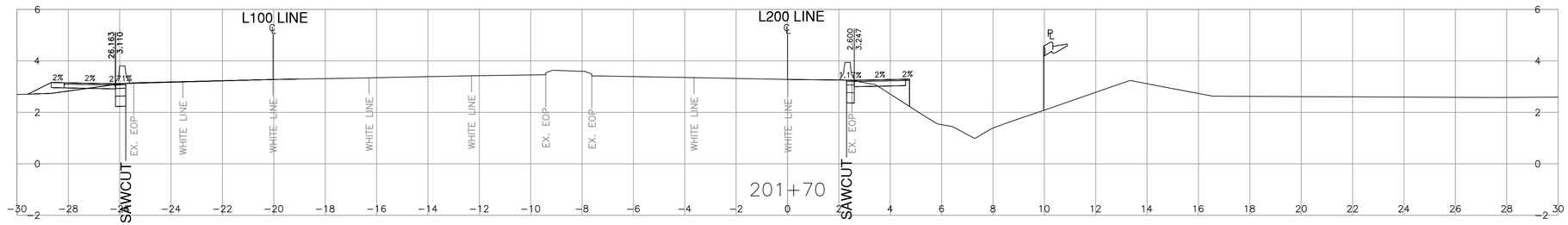

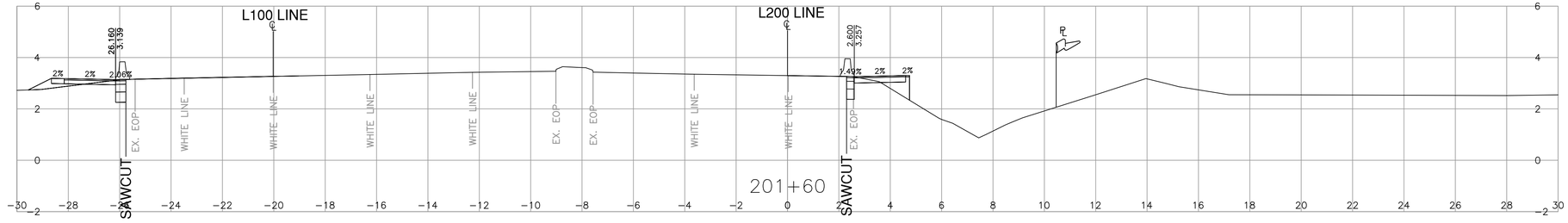

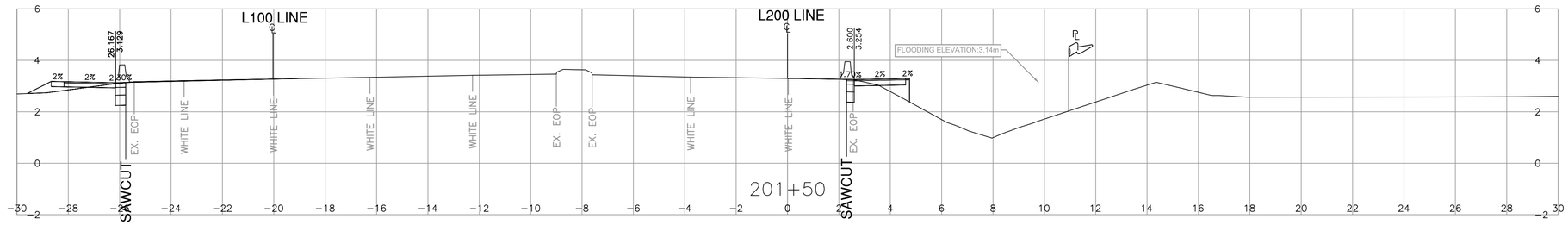

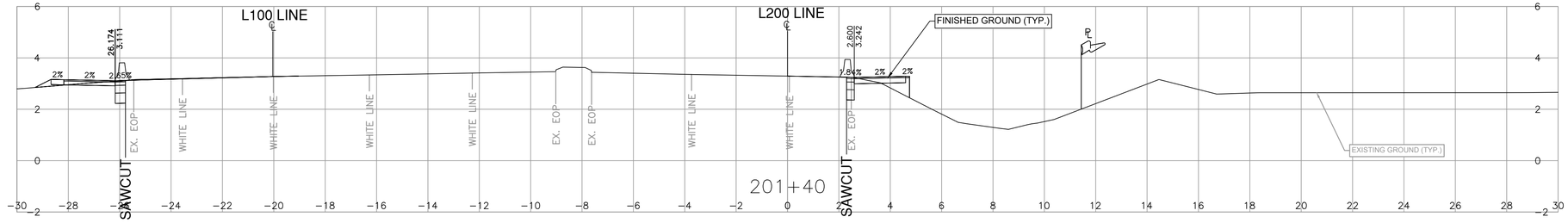

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DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1007	----

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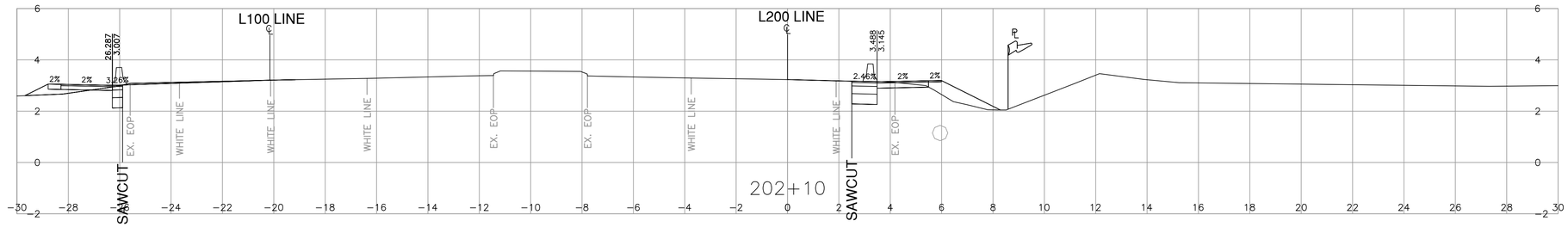

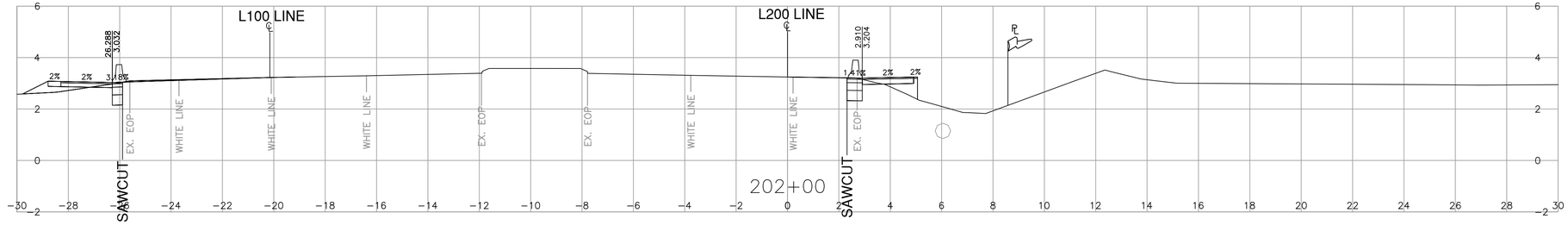

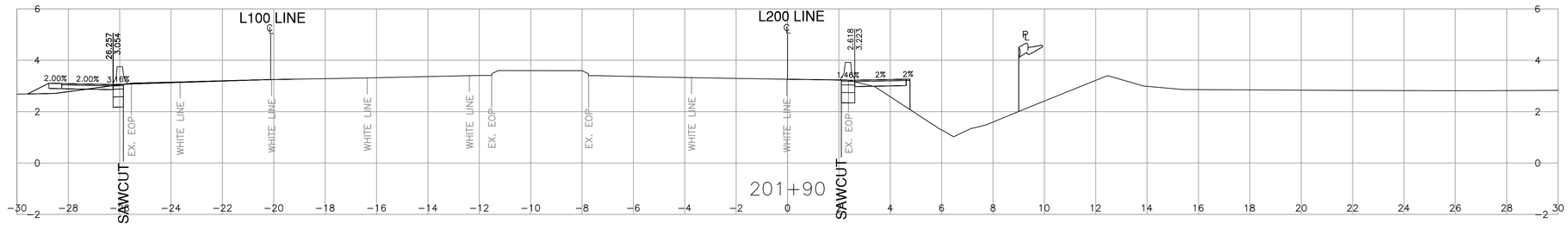

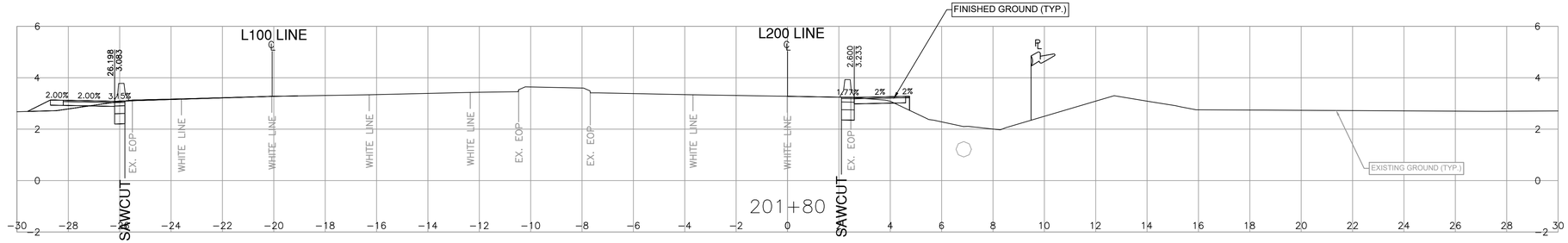

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HIGHWAY ENGINEERING AND GEOMATICS

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QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1008	----

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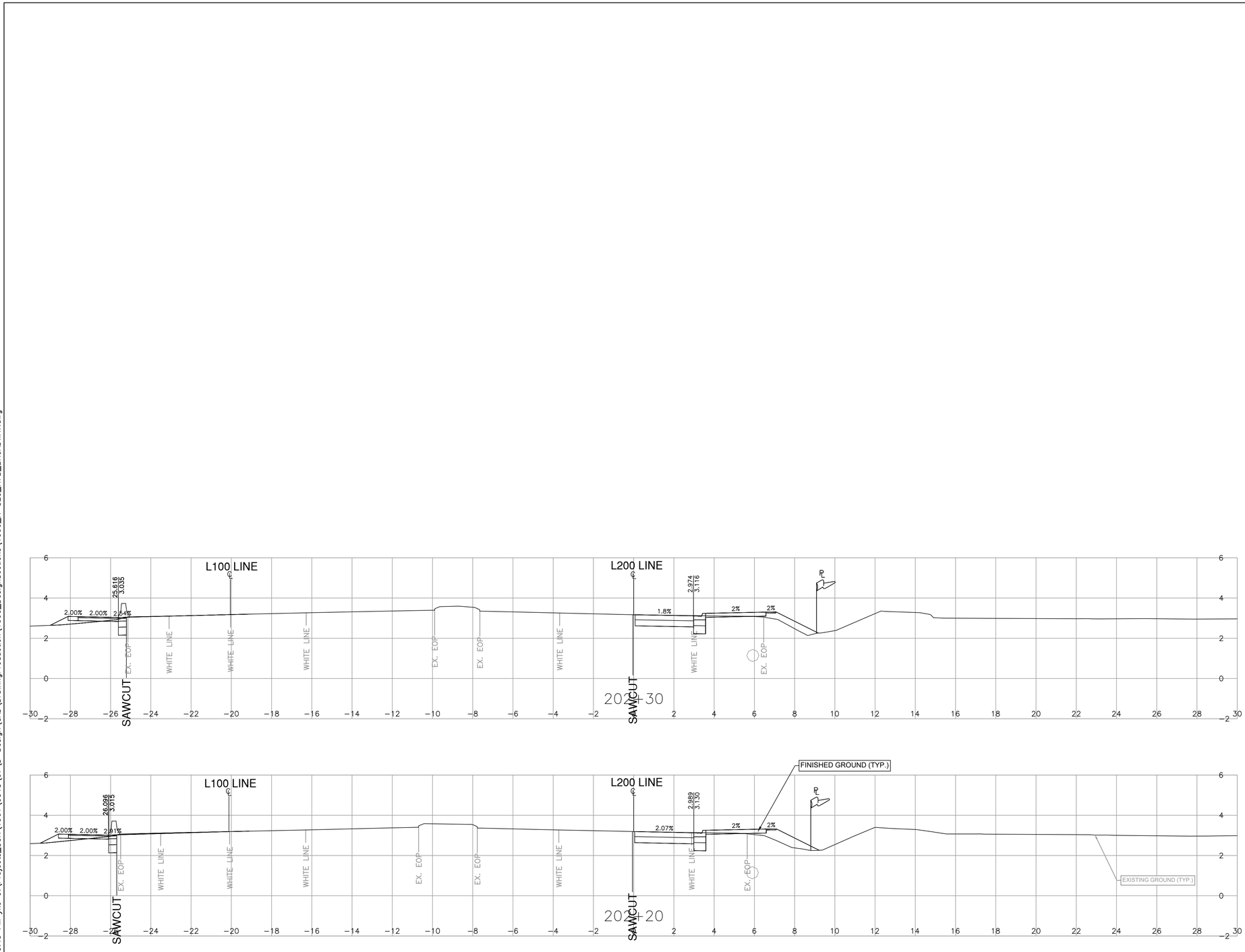

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URBAN SYSTEMS

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

CAD FILENAME	1000_X-SEC_H7B_BROADWAY	DESIGNED	R. MOOTOOSAMY DATE 2024-04-28
FILE NUMBER	1961.0518.07	QUALITY CONTROL	I. MACMILLAN DATE 2024-04-28
PLOT DATE	2024-05-01	QUALITY ASSURANCE	J. BORCH DATE 2024-04-28
		DRAWN	Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOPS AT BROADWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1009	----

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BRITISH COLUMBIA

Ministry of Transportation and Infrastructure

PROJECT NO. 13234-0001

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

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URBAN SYSTEMS

DRAWING NUMBER R1-XXXX-000 REV

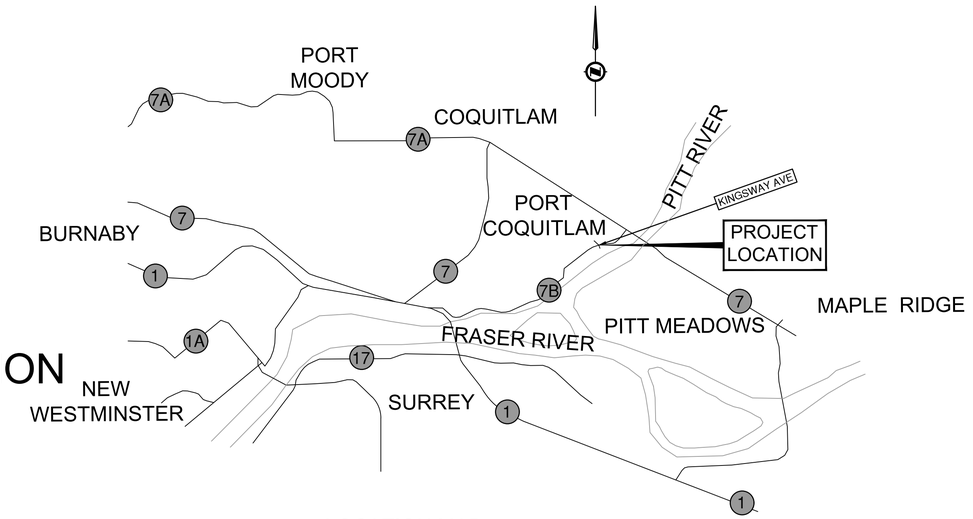
BRITISH COLUMBIA

Ministry of Transportation and Infrastructure

PROJECT NO. 13234-0001

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

GRADING AND PAVING
STA 1011+04.808 - STA 1014+30.909(0.33km)
Landmark Kilometre Inventory Segment 2717
km 7.42 to km 7.75



LOCATION MAP
NTS

DRAWING INDEX

CIVIL DRAWINGS

NUMBER	DESCRIPTION
R1-XXXX-000	COVER PAGE
R1-XXXX-001	KEY PLAN
R1-XXXX-002	LEGEND
R1-XXXX-101	PLANS
R1-XXXX-201 to 202	PROFILES
R1-XXXX-301 to 303	TYPICAL SECTIONS
R1-XXXX-401	GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING
R1-XXXX-701	DRAINAGE
R1-XXXX-1001 to 1006	DESIGN SECTIONS

ELECTRICAL DRAWINGS

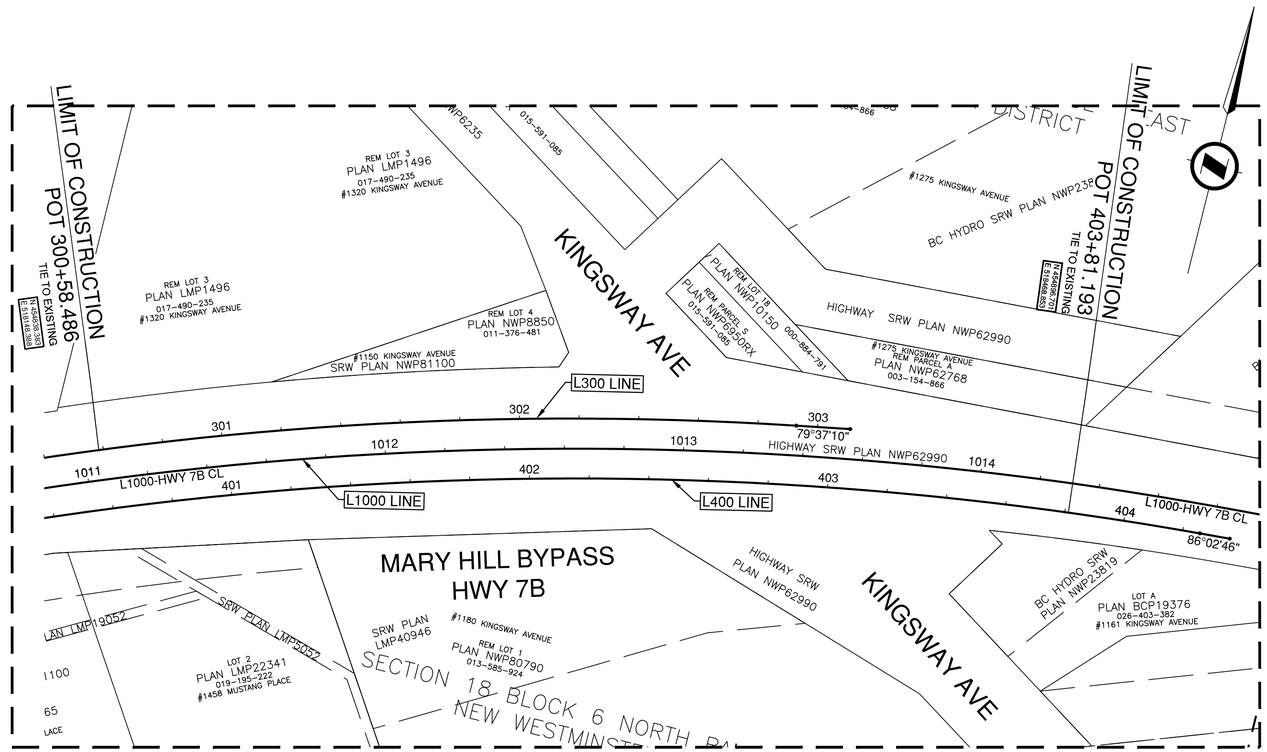
NUMBER	DESCRIPTION
TE-XXXXX-01 to 03	SIGNAL AND LIGHTING MODIFICATIONS

Date: 2023/09/26
Project: Highway 7B at Broadway Street
Horizontal Datum: UTM Z10 NAD 83 CSRS
Vertical Datum: HT2_0 geoid using CGVD28 datum
Tack Point: G5057-23 ACSF: 0.999605
Latitude: 49°15'0.32853"
Longitude: -122°44' 13.76470"

Point ID	Local Northing	Local Easting	Orthometric Height	UTM Northing	UTM Easting	Ellipsoidal Height	C.S.F.	Class	Type
G02H2441-19	455026.900	517756.079	2.586	5455027.004	517756.621	-16.045	0.999606	Origin	GCM 290957
G5055-23	455063.047	518951.331	1.913	5455063.137	518951.401	-16.691	0.999607	PROJECT	Rebar
G5057-23	455291.084	519128.562	7.699	5455291.084	519128.562	-10.938	0.999606	PROJECT	Rebar
P5149-23	454041.056	517165.872	2.374	5454041.550	517166.647	-	-	TS	Rebar
P5150-23	453782.386	517109.844	4.589	5453782.982	517110.641	-	-	TS	Rebar
P5162-23	454886.616	518441.063	3.037	5454886.776	518441.335	-	-	TS	Rebar
P5163-23	454892.624	518497.445	2.948	5454892.781	518497.694	-	-	TS	Rebar
P5164-23	454900.556	518573.719	3.189	5454900.710	518573.938	-	-	TS	Rebar
P5165-23	454907.569	518670.955	2.909	5454907.720	518671.136	-	-	TS	Rebar
P5166-23	454945.899	518793.038	2.838	5454946.035	518793.170	-	-	TS	Rebar
P5167-23	455004.687	518888.557	2.041	5455004.800	518888.652	-	-	TS	Rebar
P5168-23	454932.427	518633.520	2.482	5454932.569	518633.716	-	-	TS	Rebar
G5169-23	454909.598	518357.354	3.980	5454909.749	518357.659	-14.656	0.999606	Project	Rebar
G5170-23	454620.865	517772.579	3.082	5454621.130	517773.115	-15.582	0.999606	Project	Rebar
G5171-23	454279.504	517228.899	2.974	5454279.904	517339.606	-15.723	0.999606	Project	Rebar
G5172-23	453692.489	516994.417	4.445	5453693.120	516995.260	-14.271	0.999606	Project	Rebar
G5173-23	454647.705	517840.919	3.729	5454647.959	517841.427	-16.045	0.999606	Project	Rebar
P5174-23	454703.665	517891.692	3.674	5454703.897	517892.181	-	-	TS	Rebar
P5175-23	454738.988	517946.576	3.536	5454739.206	517947.043	-	-	TS	Rebar
P5176-23	454786.151	518027.570	3.444	5454786.350	518028.005	-	-	TS	Rebar
P5177-23	454823.413	58104.944	3.559	5454823.598	518105.348	-	-	TS	Rebar
P5178-23	454864.023	518210.856	3.810	5454864.192	518211.219	-	-	TS	Rebar
P5179-23	454867.832	518262.771	3.857	5454867.999	518263.113	-	-	TS	Rebar
P5180-23	454969.034	518310.451	2.736	5454969.161	518310.775	-	-	TS	Rebar
P5181-23	454872.001	518335.768	3.578	5454872.177	518336.082	-	-	TS	Rebar
P5182-23	454953.596	518434.766	2.521	5454953.729	518435.040	-	-	TS	Rebar
P5183-23	454571.634	517764.309	3.681	5454571.918	517764.848	-	-	TS	Rebar
P5184-23	454529.034	517684.452	3.816	5454529.335	517685.022	-	-	TS	Rebar
P5185-23	454501.549	517677.730	3.130	5454501.861	517678.303	-	-	TS	Rebar
P5186-23	454441.855	517551.792	2.957	5454442.190	517552.415	-	-	TS	Rebar
P5187-23	454317.916	517447.182	3.024	5454318.300	517447.846	-	-	TS	Rebar
P5188-23	454295.871	517394.341	3.741	5454296.264	517395.026	-	-	TS	Rebar
P5189-23	454385.283	517481.933	2.939	5454385.641	517482.584	-	-	TS	Rebar
P5190-23	453739.060	517024.474	4.187	5453739.673	517025.305	-	-	TS	Rebar
P5194-23	454328.957	517283.836	2.774	5454329.337	517284.564	-	-	TS	Rebar
P5195-23	454229.291	517333.572	3.289	5454229.710	517334.281	-	-	TS	Rebar
P5196-23	454161.580	517243.831	2.597	5454162.026	517244.576	-	-	TS	Rebar
P5197-23	454125.762	517189.479	3.423	5454126.222	517190.245	-	-	TS	Rebar
P5198-23	454064.617	517148.877	3.572	5454065.101	5171149.659	-	-	TS	Rebar
P5199-23	453973.583	517141.545	3.021	5453974.103	517142.330	-	-	TS	Rebar
P5200-23	453795.978	517091.760	3.154	5453796.569	517092.565	-	-	TS	Rebar
P5201-23	453912.256	517161.863	3.846	5453912.801	517162.640	-	-	TS	Rebar
P5202-23	454199.854	517246.846	3.412	5454200.285	517247.590	-	-	TS	Rebar

All local coordinates are derived by first scaling from the Tack Point and then removing the millionth digit from the Northing

Notes:
* The CGG2013a Geoid uses the CGVD2013 vertical datum and the HT2_0 Geoid uses the CGVD28 vertical datum
* Corridor control can be derived from robust network adjustments using sources such as Mascot, active, and/or PPP for valid absolute accuracies.
* Project control originates from a corridor point and closes to a network confined within the specific project to provide survey grade relative accuracies.
* "name"static brass cap monuments-year. "G" static tag #-year, "K" multi epoch rtk, "P"closed total station traverse.



R1-XXXX-101

KEY PLAN
0 10 1:1000 50m

REFER TO TENDER DRAWING PACKAGE APPROVAL FORM	REFER TO TENDER DRAWING PACKAGE APPROVAL FORM
DIRECTOR, ENGINEERING	REGIONAL DIRECTOR
DATE	DATE

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DRAWING NUMBER: R1-XXXX-001 REV:

PLOT DATE: 2024-05-01 6:10:06 PM yke U:\Projects_SUR\1961\0518\08\D-Design\CAD\DrawingProduction\000_CoverKeyPlanLegend\000_COV _ H7B KINGSWAY.dwg

LEGEND

EXISTING SYMBOLS

AERIAL UTILITIES

- POWER POLE
- POWER POLE WITH TRANSFORMER
- POWER / TELEPHONE POLE WITH TRANSFORMER
- POWER GUY POLE
- POWER / TELEPHONE POLE
- POWER / TELEPHONE GUY POLE
- ANCHOR OR GUY WIRE
- DEADMAN
- TELEPHONE POLE
- TELEPHONE GUY POLE
- HIGH TENSION POLE
- HIGH TENSION TOWER
- UTILITY POLE

SURVEY

- CONTROL POINT
- CONTROL MONUMENT
- LEGAL MONUMENT
- STANDARD IRON PIN FOUND
- CAPPED IRON PIN
- LEAD PLUG
- BENCHMARK
- SPOT ELEVATION

GEOTECHNICAL

- TESTPIT
- TESTHOLE
- OBSERVATION WELL

DETAIL

- GATE POST
- MAILBOX
- OLD POST
- DELINEATOR POST
- FLAGPOLE
- DECORATIVE TREE
- TREE
- PILING
- CONCRETE PILLAR
- WELL
- SWAMP
- DIRECTIONAL ARROW

DRAINAGE & UTILITIES

- STORM MANHOLE
- STANDARD CATCH BASIN
- ROUND CATCH BASIN
- DRYWELL
- CB MANHOLE
- CULVERT INLET

DRAINAGE & UTILITIES

- CULVERT OUTLET
- SANITARY MANHOLE
- UTILITY MANHOLE
- WATER MANHOLE
- MANHOLE UNKNOWN

ELECTRICAL

- JUNCTION BOX
- UTILITY VAULT
- LAMP STANDARD
- UTILITY KIOSK
- UTILITY PEDESTAL
- TRAFFIC COUNTER
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROLLER

METERS

- VALVE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- WELL
- STANDPIPE / WATER BLOW OFF
- AIR VALVE
- GAS VALVE
- SERVICE METER

UNDERGROUND

- VENT/BREATHER PIPE
- FILLER CAP
- FUEL / GAS PUMP
- FUEL TANK
- SEPTIC TANK
- UNDERGROUND MARKER (MISC)
- IRRIGATION JUNCTION BOX
- IRRIGATION SPRINKLER HEAD

ROAD SIGNS

- STANDARD SIGN
- COMMERCIAL SIGN
- SIGN BRIDGE STRUCTURE
- CANTILEVER STRUCTURE
- TWO POST SIGN
- TWO POST SIGN (BREAKAWAY)
- STANDARD DAVIT POLE - TYPE 3
- STANDARD COMBINATION POLE - TYPE 1
- HEAVY DUTY DAVIT POLE - TYPE 6
- HEAVY DUTY COMBINATION POLE - TYPE 7
- HEAVY POLE - TYPE H
- HEAVY COMBINATION POLE - TYPE H

EXISTING LINE TYPES

LOT BOUNDARIES

- SECTION LINE / DISTRICT LOT
- 1/4 SECTION BOUNDARY
- LOT BOUNDARY
- EASEMENTS

EXISTING LINE TYPES

MAN-MADE FEATURES

- RAILWAY TRACKS
- RAILWAY BALLAST
- ROAD MARKING - YELLOW
- ROAD MARKING - WHITE
- ROAD MARKING - BROKEN
- CROSSWALK
- STOP LINE
- EDGE OF ROAD - PAVED
- EDGE OF ROAD GRAVEL
- GRAVEL SHOULDER
- DIRT ROAD
- GRAVEL ROAD
- EDGE OF GRAVEL
- SIDEWALK
- CONCRETE PAD
- FENCE
- TOP OF CURB
- CL OF GUTTER
- CONCRETE ROAD BARRIER
- TOP OF FILL
- RIP RAP
- BUILDING
- TREE LINE
- LAWN LINE

HYDRAULIC

- CULVERT
- DITCH CENTER
- DITCH EDGE
- CENTER OF CREEK
- HIGH WATER
- EDGE OF WATER
- HIGH WATER MARK (EXTREME)
- SEEPAGE LINE

TOPOGRAPHY

- BASE OF SLOP
- MARSH
- TOP OF ROCK
- SLIDE
- TALUS
- TRAIL
- TOP OF SLOPE

UTILITIES

- OVERHEAD UTILITY
- PIPELINE (GAS)
- UG ELECTRIC
- UG COMMUNICATION
- STORM SEWER
- SANITARY SEWER
- WATER MAIN
- MISCELLANEOUS UNDERGROUND

PROPOSED SYMBOLS

AERIAL UTILITIES

- POWER POLE
- POWER POLE WITH TRANSFORMER
- POWER / TELEPHONE POLE WITH TRANSFORMER
- POWER GUY POLE
- POWER / TELEPHONE POLE
- POWER / TELEPHONE GUY POLE
- ANCHOR OR GUY WIRE
- DEADMAN
- TELEPHONE POLE
- TELEPHONE GUY POLE
- HIGH TENSION POLE
- HIGH TENSION TOWER

DETAIL

- GATE POST
- MAILBOX
- POST
- POST MOUNTED DELINEATOR
- FLAGPOLE
- DIRECTIONAL ARROW

DRAINAGE & UTILITIES

- MANHOLE
- STORM MANHOLE
- STANDARD CATCH BASIN
- VARIABLE DEPTH CATCH BASIN
- INLET STRUCTURE
- SPILLWAY
- HEADWALL
- DRYWELL
- TELEPHONE MANHOLE
- POWER MANHOLE
- SANITARY MANHOLE
- UTILITY MANHOLE
- WATER MANHOLE
- MANHOLE UNKNOWN

ELECTRICAL

- JUNCTION BOX
- UTILITY VAULT
- LAMP STANDARD
- UTILITY KIOSK
- UTILITY PEDESTAL
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROLLER
- UNDERGROUND ELECTRICAL TRANSFORMER

METERS

- VALVE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- STANDPIPE / WATER BLOW OFF
- AIR VALVE
- GAS VALVE
- SERVICE METER

UNDERGROUND

- VENT/BREATHER PIPE
- FILLER CAP
- FUEL / GAS PUMP
- FUEL TANK
- SEPTIC TANK
- UNDERGROUND MARKER (MISC)

ROAD SIGNS

- STANDARD SIGN
- BARRIER MOUNTED DELINEATOR
- RELOCATED OVERHEAD SIGN
- TWO POST SIGN
- TWO POST SIGN (BREAKAWAY)
- STANDARD DAVIT POLE - TYPE 3
- STANDARD COMBINATION POLE - TYPE 1
- HEAVY DUTY DAVIT POLE - TYPE 6
- HEAVY DUTY COMBINATION POLE - TYPE 7
- HEAVY POLE - TYPE H
- HEAVY COMBINATION POLE - TYPE H
- CANTILEVER STRUCTURE
- SIGN BRIDGE STRUCTURE

PATTERNS

- CONCRETE BUS PAD
- ASPHALT PAVEMENT REMOVAL
- FULL DEPTH ASPHALT PAVEMENT OR SIDEWALK CONSTRUCTION
- CONCRETE SIDEWALK
- CITY OF PORT COQUITLAM'S MUP PROJECT

PROPOSED LINE TYPES

FEATURES

- HIGHWAY CONTROL LINE (100+00)
- MINOR CONTROL LINE (100+00)
- CLEARING AND GRUBBING (CL. & GR.)
- PAVEMENT EDGE
- SHOULDER EDGE
- CURB AND GUTTER
- RAISED ISLAND
- SAWCUT
- RUMBLE STRIP
- RETAINING WALL
- FENCE
- TOP OF CUT / BOTTOM OF FILL (TOES) (CUT / C/F / FILL)
- 100mm - YELLOW PAINT LINE (SOLID)
- 100mm - WHITE PAINT LINE (SOLID)
- 100mm - CONTINUITY PAINT LINE (BROKEN) (3 3)
- 100mm - LANE PAINT LINE (BROKEN) (8 5 8)
- CONCRETE BARRIER
- CONCRETE DRAINAGE BARRIER AND/OR RIPRAP OUTFALL (100+00)
- DITCH CENTER / ADDITIONAL DITCHING
- DITCH EDGE

BOUNDARIES

- RIGHT OF WAY
- TEMPORARY LICENCE TO CONSTRUCT (T.L.T.C.)

UTILITIES

- OVERHEAD UTILITY
- PIPELINE (GAS)
- SERVICE LINE (GAS)
- UG ELECTRIC
- UG COMMUNICATION
- STORM SEWER
- SUB DRAIN
- CULVERT
- SANITARY SEWER
- WATER MAIN
- MISCELLANEOUS UNDERGROUND

NOTE: NOT ALL SYMBOLS AND LINE TYPES ILLUSTRATED IN THIS LEGEND ARE UTILIZED IN THE FOLLOWING DESIGN

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URBAN SYSTEMS

BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE

CAD FILENAME 000_COV _ H7B KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

LEGEND

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-002	

PLOT DATE: 2024-05-01 6:10:07 PM| yke U:\Projects_SUR\1961\0518\08\D-Design\CAD\DrawingProduction\000_CoverKeyPlanLegend\000_COV _ H7B KINGSWAY.dwg

LIMIT OF CONSTRUCTION
POT 300+58.486
TIE TO EXISTING
N 454850.000
E 518488.993

TIE CRB TO EXISTING
REMOVE AND RELOCATE EXISTING SIGNS
SAW CUT
COMBINED CURB & GUTTER (TYP.)
CONCRETE BUS PAD (TYP.)

REMOVE AND RELOCATE EXISTING SIGNS
REMOVE EXISTING BARRIER
CLEAR AND GRUB LINE

LIMIT OF CONCRETE SIDEWALK CONSTRUCTION "TIE TO EXISTING"
REMOVE/REGRADE EXISTING GRAVEL TO FACILITATE CONSTRUCTION OF 2.0m CONCRETE SIDEWALK. KEEP EXISITNG CURB AND GUTTER AS IS.

REM LOT 4
COMBINED CURB & GUTTER (TYP.)
REMOVE EXISTING CURB AND GUTTER
SAW CUT
REMOVE AND RELOCATE EXISTING SIGNS

REM LOT 3
PLAN LMP1496
017-490-235
#1320 KINGSWAY AVENUE

#1150 KINGSWAY AVEN
SRW PLAN NWP81100

KINGSWAY AVE
015-591-085

REM LOT 18
PLAN NWP10150
000-884-797

REM PARCEL S
PLAN NWP6950RY
015-591-085

REM PARCEL A
PLAN NWP62768
003-154-866

#1275 KINGSWAY AVENUE

BC HYDRO SRW PLAN NWP23819

HIGHWAY SRW PLAN NWP62990

LIMIT OF CONSTRUCTION
POT 403+81.193
TIE TO EXISTING
N 454868.201
E 518488.201

EC 302+92.852
POT 303+10.921

MARY HILL BYPASS
HWY 7B

L1000-HWY 7B CL

L300-KINGSWAY WB BS
R 1193.000 Rt
Δ 13°55'23"
Tc 145.669
Arc 289.903
Ec 8.860

L400-KINGSWAY EB BS
R 1200.000 Rt
Δ 20°15'05"
Tc 214.309
Arc 424.147
Ec 18.987

EXISTING BARRIER TO REMAIN

LOT 2
PLAN LMP22341
019-195-222
#1458 MUSTANG PLACE

SRW PLAN LMP5052
SRW PLAN LMP40946

#1180 KINGSWAY AVENUE
REM LOT 1
PLAN NWP80790
013-585-924

SECTION 18 BLOCK 5 NORTH RANGE 1 EAST
NEW WESTMINSTER DISTRICT

TIE TO CITY OF PORT COQUITLAM'S MUP PROJECT (CITY OF PORT COQUITLAM'S MUP TO BE CONSTRUCTED BY OTHERS)
REMOVE AND RELOCATE EXISTING SIGN
CLEAR AND GRUB LINE
CITY OF PORT COQUITLAM'S MUP PROJECT
REMOVE EXISTING BARRIER
COMBINED CURB & GUTTER (TYP.)
REMOVE EXISTING ASPHALT, REGRADE MUP WITH 25MM WGB AND 50MM ASPHALT PAVEMENT TO MEET PROPOSED ELEVATIONS. REFER TO TYPICAL SECTIONS ON DWG R1-XXXX-302
TIE TO CITY OF PORT COQUITLAM'S MUP PROJECT (CITY OF PORT COQUITLAM'S MUP TO BE CONSTRUCTED BY OTHERS)

SAW CUT
EXISTING BARRIER TO REMAIN
TIE CRB TO EXISTING
REMOVE AND RELOCATE EXISTING SIGN
TIE TO EXISTING MUP
REMOVE EXISTING BUS ID SIGN
REMOVE EXISTING BARRIER

LOT A
PLAN BCP19376
026-403-382
1161 KINGSWAY AVENUE

KINGSWAY AVE

L400-KINGSWAY EB BS
86°02'46"

EC 404+25.786
POT 404+35.948

79°37'10"

LEGEND

CONCRETE BUS PAD	
ASPHALT PAVEMENT REMOVAL	
FULL DEPTH ASPHALT PAVEMENT OR SIDEWALK CONSTRUCTION	
CONCRETE SIDEWALK	
CITY OF PORT COQUITLAM'S MUP PROJECT	

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1006

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PROFILES SEE DWG R1-XXXX-201 TO R1-XXXX-202

CLEARING AND GRUBBING TOTAL THIS SHEET: 771m²

THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY AND PREDOMINATELY BASED ON AS-BUILT INFORMATION. THE CONTRACTOR WILL CONFIRM THE FIELD LOCATIONS OF THESE UTILITIES WITH THE UTILITY STAKEHOLDER.

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URBAN SYSTEMS

SCALE 0 5 1:500 25m

CAD FILENAME 100_PLANS_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

PLAN

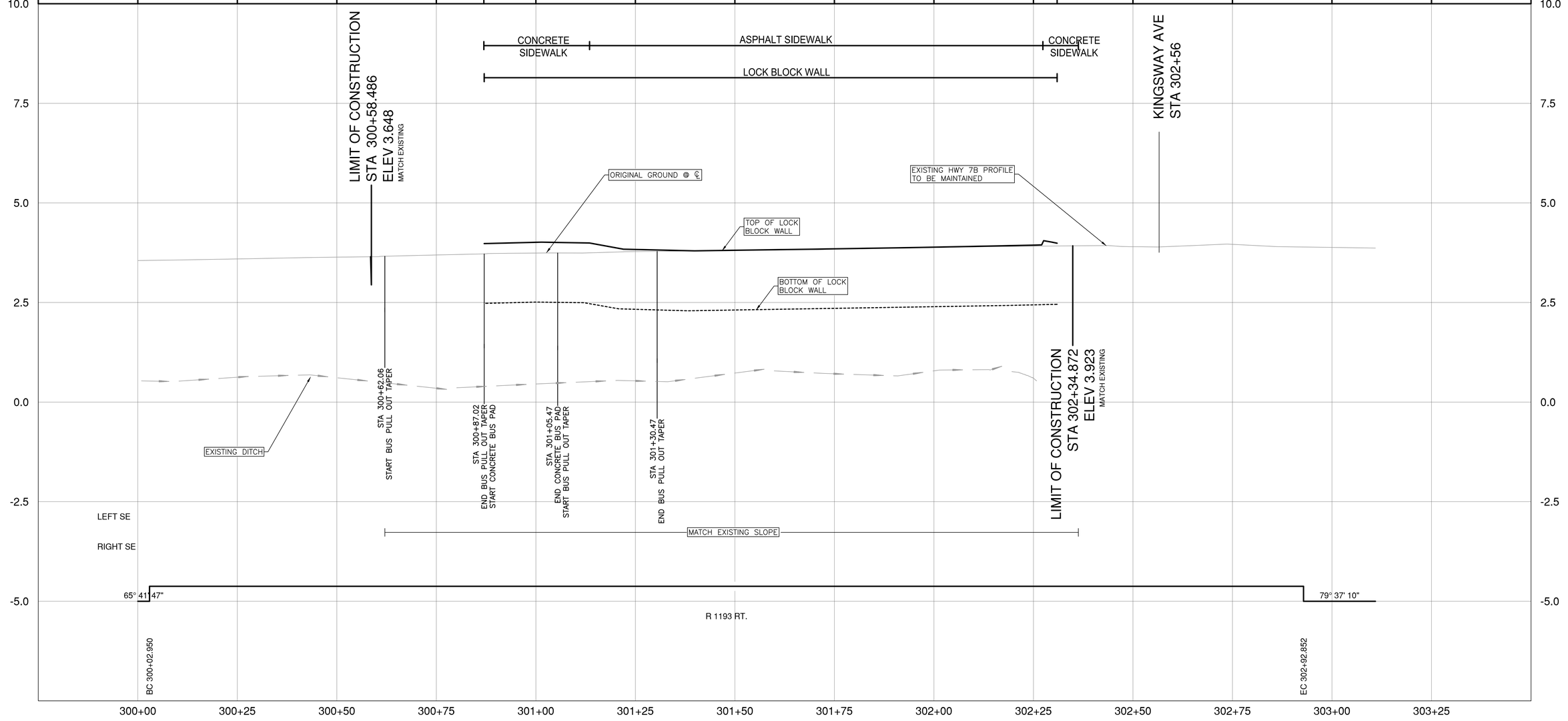
HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL	I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE	J. BORCH DATE 2024-04-28
DRAWN	Y. KE DATE 2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-101	

PLOT DATE: 2024-05-01 6:10:42 PM yke U:\Projects_SUR\1961\0518\08\D-Design\CAD\DrawingProduction\100_Plans\100_PLANS_H7B_KINGSWAY.dwg

EXCAVATION m³								135								
EMBANKMENT m³								60								
STRIPPING m³								105								
SGSB DEPTH mm								400								



L300-KINGSWAY AVE WB BUS STOP

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1002

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301

FOR PLANS SEE DWG R1-XXXX-101

DESIGN SPEED L300 LINE - 60 km/h
L400 LINE - 60 km/h

THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY AND PREDOMINATELY BASED ON AS-BUILT INFORMATION. THE CONTRACTOR WILL CONFIRM THE FIELD LOCATIONS OF THESE UTILITIES WITH THE UTILITY STAKEHOLDER.

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MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 5 H 1:500 25m
0 0.5 V 1:50 2.5m

CAD FILENAME 200_PROFILES_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

PROFILE

HIGHWAY 7B
L300- KINGSWAY AVE WB BUS STOP

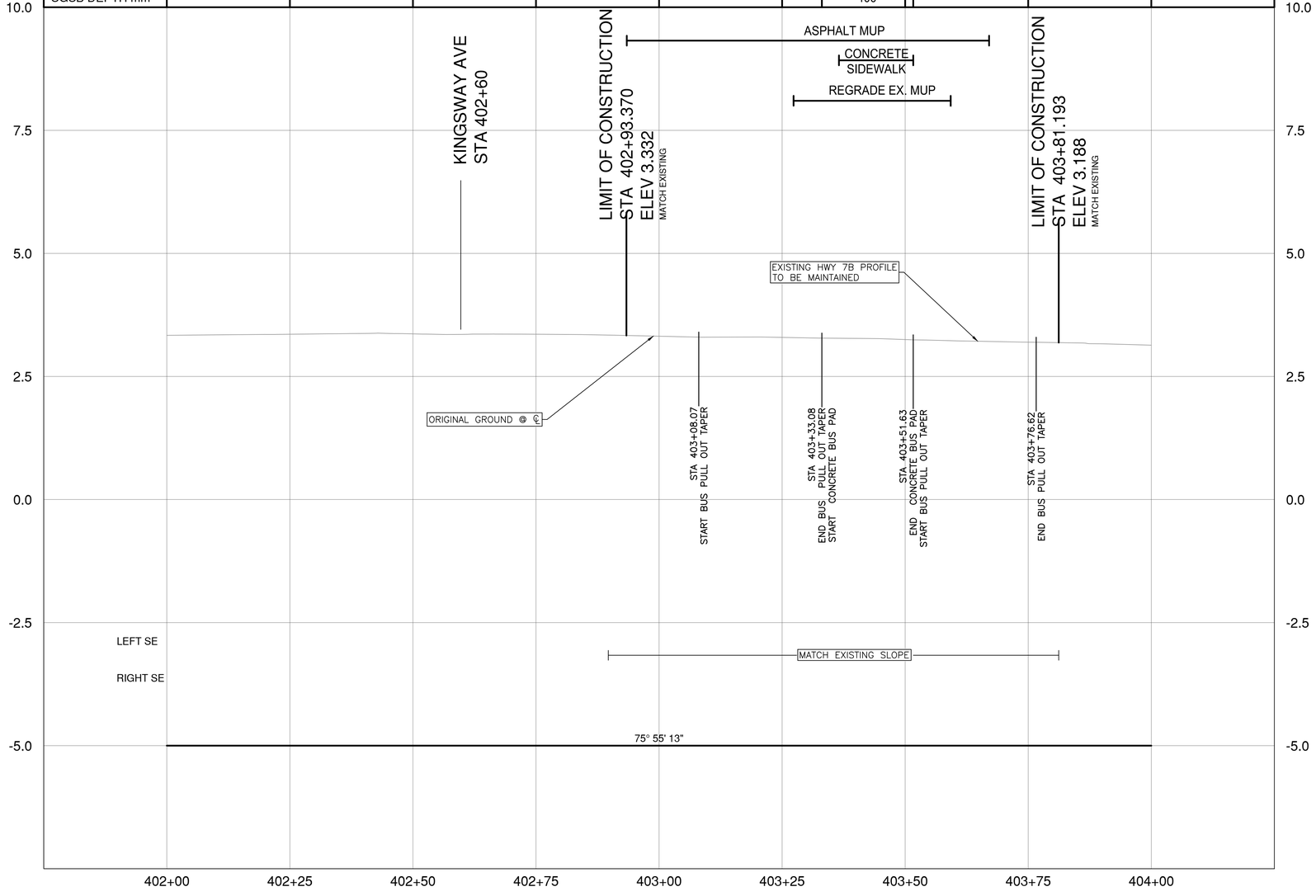
L300 - KINGSWAY AVENUE WB

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-201	----

PLOT DATE: 2024-05-01 6:10:45 PM yke U:\Projects_SUR\1961\0518\08\D-Design\CAD\DrawingProduction\200_Profiles\200_Profiles\200_PROFILES_H7B_KINGSWAY.dwg

EXCAVATION m³							31			
EMBANKMENT m³							-			
STRIPPING m³							10			
SGSB DEPTH mm							400			



L400-KINGSWAY ST EB BUS STOP

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1002

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301

FOR PLANS SEE DWG R1-XXXX-101

DESIGN SPEED L300 LINE - 60 km/h
L400 LINE - 60 km/h

THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN HEREON IS APPROXIMATE ONLY AND PREDOMINATELY BASED ON AS-BUILT INFORMATION. THE CONTRACTOR WILL CONFIRM THE FIELD LOCATIONS OF THESE UTILITIES WITH THE UTILITY STAKEHOLDER.

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URBAN SYSTEMS

SCALE 0 5 H 1:500 25m
0 0.5 V 1:50 2.5m

CAD FILENAME 200_PROFILES_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

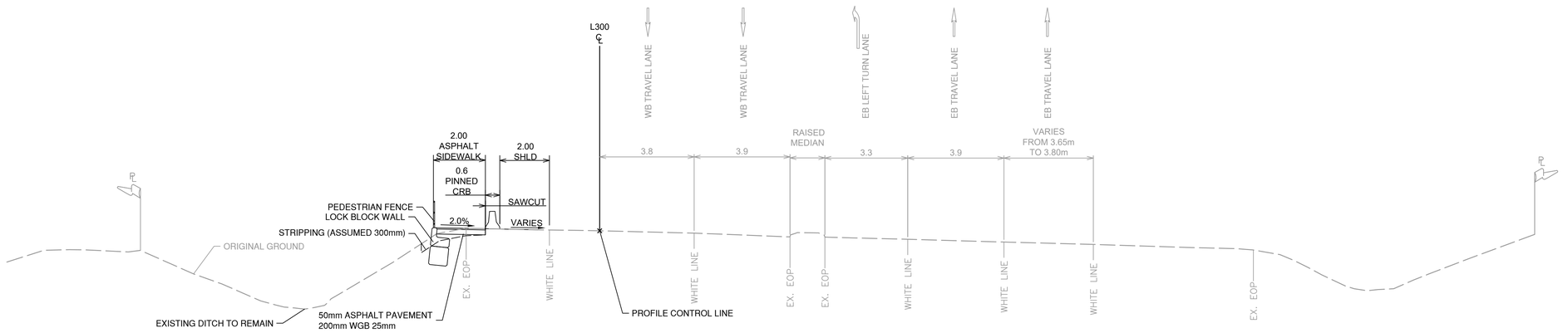
PROFILE

HIGHWAY 7B
L400 KINGSWAY AVE EB BUS STOP
L400 - KINGSWAY AVENUE EB

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

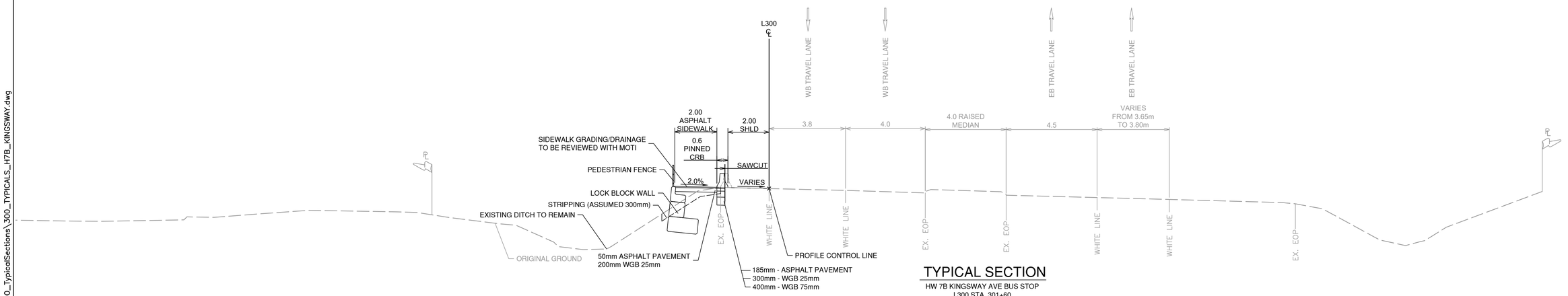
PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-202	----

PLOT DATE: 2024-05-01 6:10:46 PM yke U:\Projects_SUR\1961\0518\08\D-Design\CAD\DrawingProduction\200_Profiles\200_PROFILES_H7B_KINGSWAY.dwg



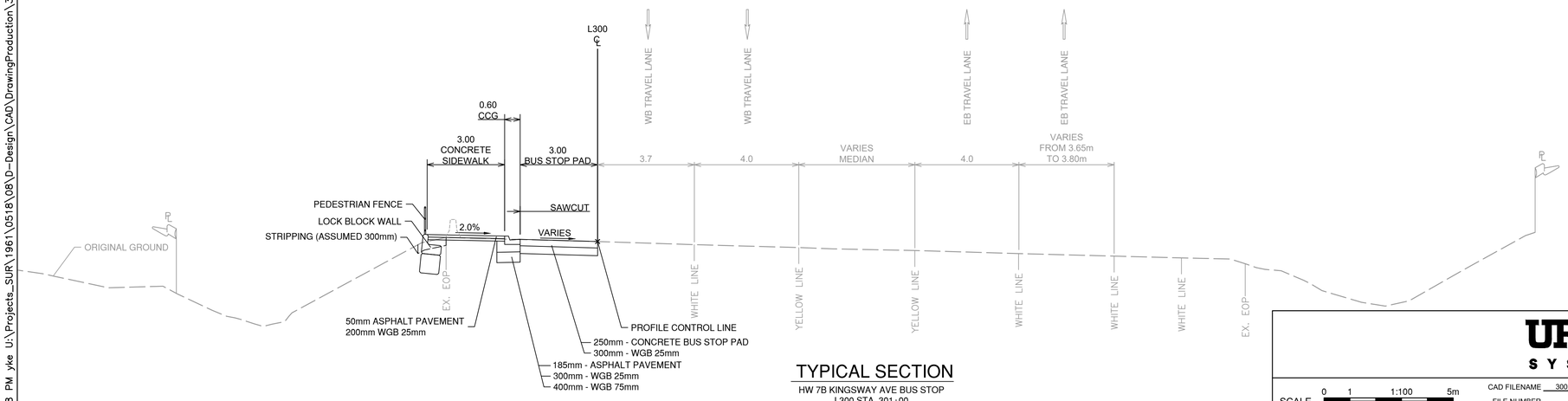
TYPICAL SECTION

HW 7B KINGSWAY AVE BUS STOP
L300 STA. 302+20



TYPICAL SECTION

HW 7B KINGSWAY AVE BUS STOP
L300 STA. 301+60



TYPICAL SECTION

HW 7B KINGSWAY AVE BUS STOP
L300 STA. 301+00

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SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 1 1:100 5m

CAD FILENAME 300_TYPICALS_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

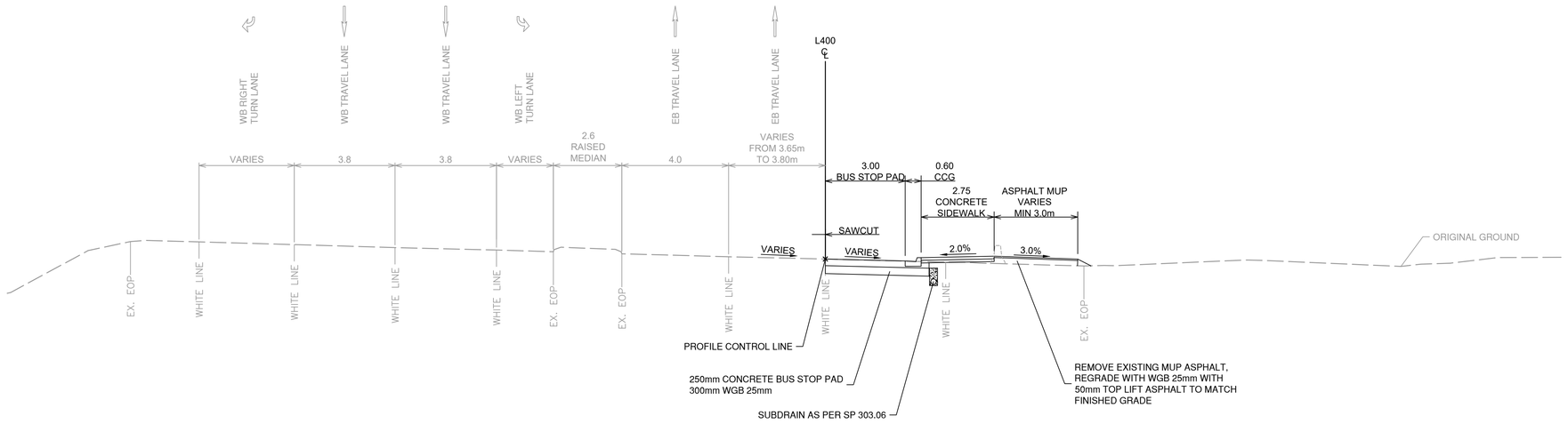
TYPICAL SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

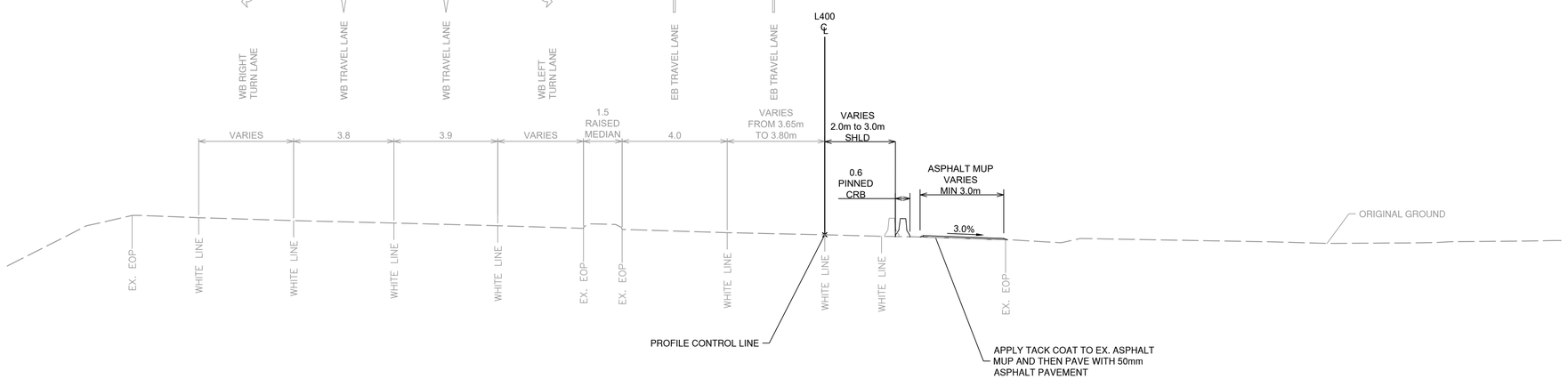
PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-301	

PLOT DATE: 2024-05-01 6:10:48 PM yke U:\Projects_SUR\1961\0518\08\D-Design\CAD\DrawingProduction\300_TypicalSections\300_TYPICALS_H7B_KINGSWAY.dwg



TYPICAL SECTION

HW 7B KINGSWAY AVE BUS STOP
L400 STA. 403+40



TYPICAL SECTION

HW 7B KINGSWAY AVE BUS STOP
L400 STA. 403+20

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SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 1 1:100 5m

CAD FILENAME 300_TYPICALS_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

TYPICAL SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
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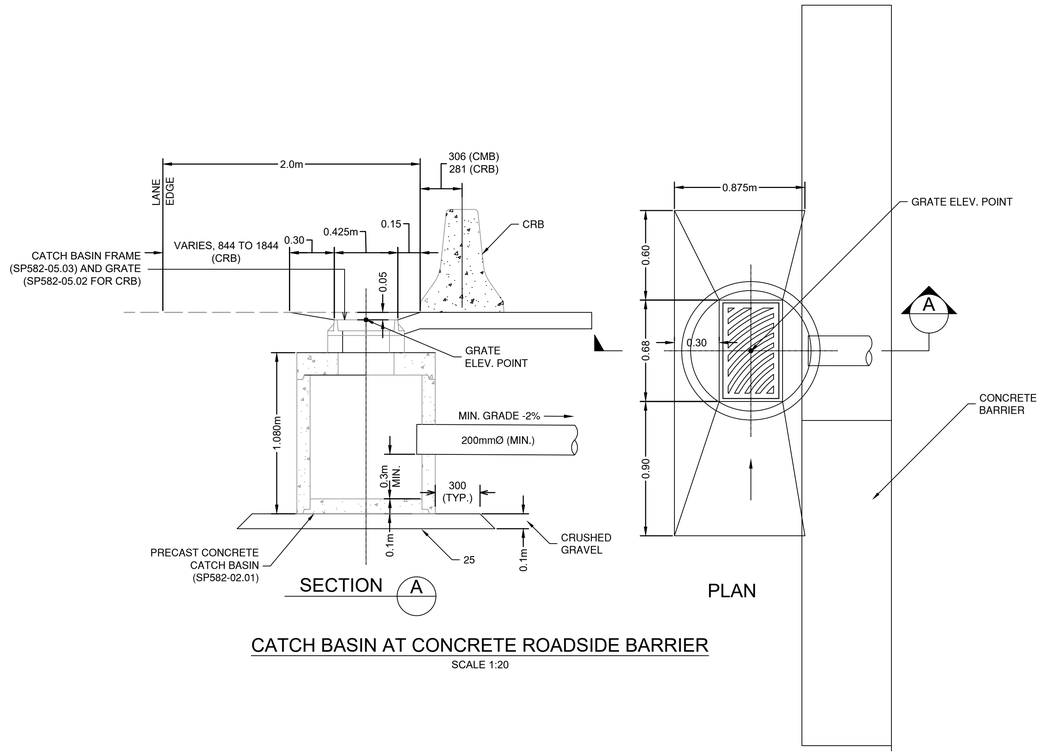
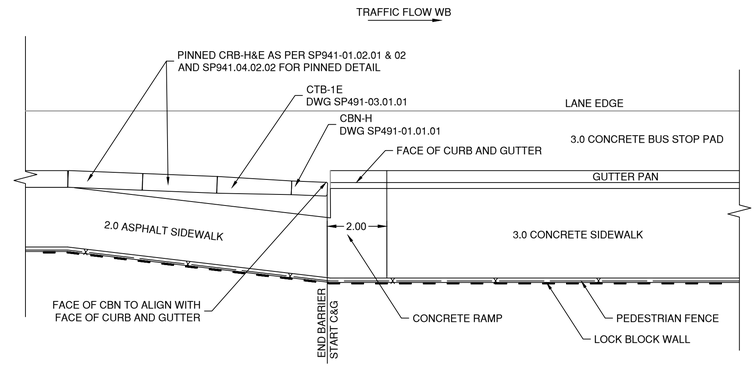
PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-302	----



CATCH BASIN AT CONCRETE ROADSIDE BARRIER

SCALE 1:20

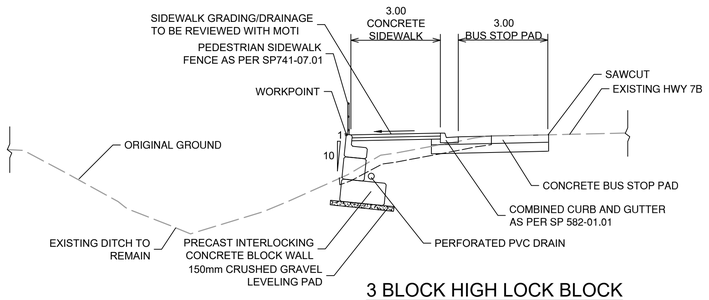


TYPICAL CRB TERMINAL DETAIL WITH CURB & GUTTER AT KINGSWAY WB BUS STOP

NTS

TYPICAL CRB TERMINAL DETAIL WITH CURB & GUTTER AT KINGSWAY EB BUS STOP

NTS



3 BLOCK HIGH LOCK BLOCK WALL DETAIL (TYPICAL)

NTS

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HIGHWAY ENGINEERING AND GEOMATICS

SCALE

CAD FILENAME 300_TYPICALS_H7B_KINGSWAY
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PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

DETAILS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

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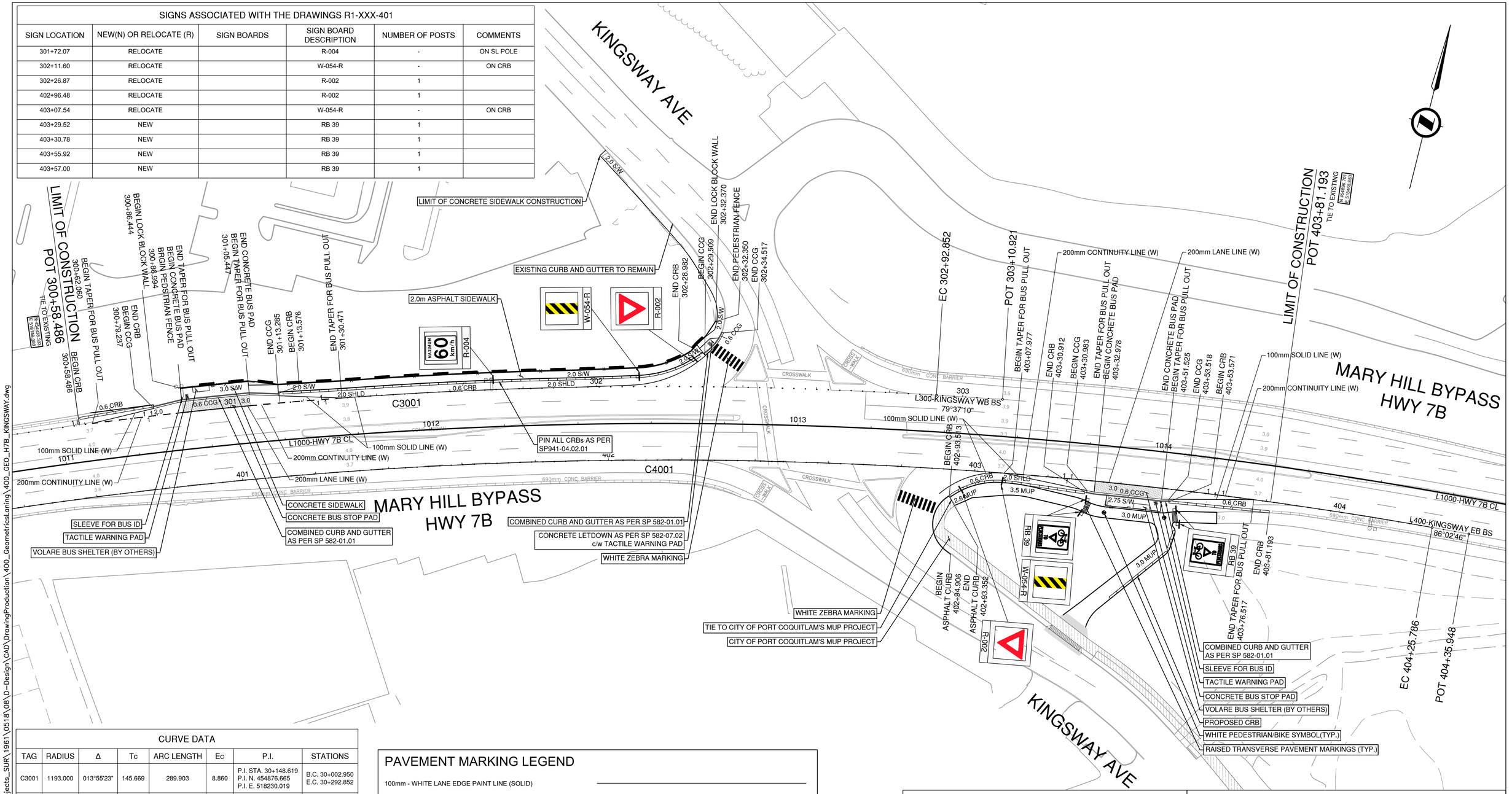
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-303	----

SIGNS ASSOCIATED WITH THE DRAWINGS R1-XXX-401					
SIGN LOCATION	NEW(N) OR RELOCATE (R)	SIGN BOARDS	SIGN BOARD DESCRIPTION	NUMBER OF POSTS	COMMENTS
301+72.07	RELOCATE		R-004	-	ON SL POLE
302+11.60	RELOCATE		W-054-R	-	ON CRB
302+26.87	RELOCATE		R-002	1	
402+96.48	RELOCATE		R-002	1	
403+07.54	RELOCATE		W-054-R	-	ON CRB
403+29.52	NEW		RB 39	1	
403+30.78	NEW		RB 39	1	
403+55.92	NEW		RB 39	1	
403+57.00	NEW		RB 39	1	



CURVE DATA							
TAG	RADIUS	Δ	Tc	ARC LENGTH	Ec	P.I.	STATIONS
C3001	1193.000	013°55'23"	145.669	289.903	8.860	P.I. STA. 30+148.619 P.I. N. 454876.665 P.I. E. 518230.019	B.C. 30+002.950 E.C. 30+292.852
C4001	1200.000	020°15'05"	214.309	424.147	18.987	P.I. STA. 40+215.949 P.I. N. 454885.824 P.I. E. 518299.474	B.C. 40+001.639 E.C. 40+425.786

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1006

FOR DRAINAGE AND UTILITIES SEE DWG R1-XXXX-701

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PROFILES SEE DWG R1-XXXX-201 TO R1-XXXX-202

FOR PLANS SEE DWG R1-XXXX-101

ISSUED FOR
50% DETAILED DESIGN
2024-05-01
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PAVEMENT MARKING LEGEND

100mm - WHITE LANE EDGE PAINT LINE (SOLID) ——————

200mm - WHITE LANE EDGE PAINT LINE (SOLID) ——————

200mm - WHITE GUIDE LANE LINE (DASHED) — — — — — — — — — —

GENERAL NOTES

1. ALL SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE BC MOTI MANUAL OF STANDARD TRAFFIC SIGNS & PAVEMENT MARKINGS AND / OR THE CATALOGUE OF STANDARD SIGNS, WHICHEVER SIGN CODE IS MORE CURRENT.
2. EXISTING SIGNS TO REMAIN UNLESS NOTED OTHERWISE.
3. WHERE SIGNAL ARM IS MOVED, RELOCATE SIGN ALREADY ON ARM ALONG WITH THE SIGNAL ARM.
4. ERADICATE EXISTING PAVEMENT MARKING IN CONFLICT WITH THE PROPOSED WORKS SHOWN ON SIGNING AND PAVEMENT MARKING DRAWINGS.
5. STOP BAR & CROSSWALKS TO BE THERMOPLASTIC.

URBAN SYSTEMS

BRITISH COLUMBIA

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE
SOUTH COAST REGION
HIGHWAY ENGINEERING AND GEOMATICS

SCALE 0 5 1:500 25m

CAD FILENAME 400_GEO_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

GEOMETRICS & LANING - SINGING & PAVEMENT MARKING

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-401	

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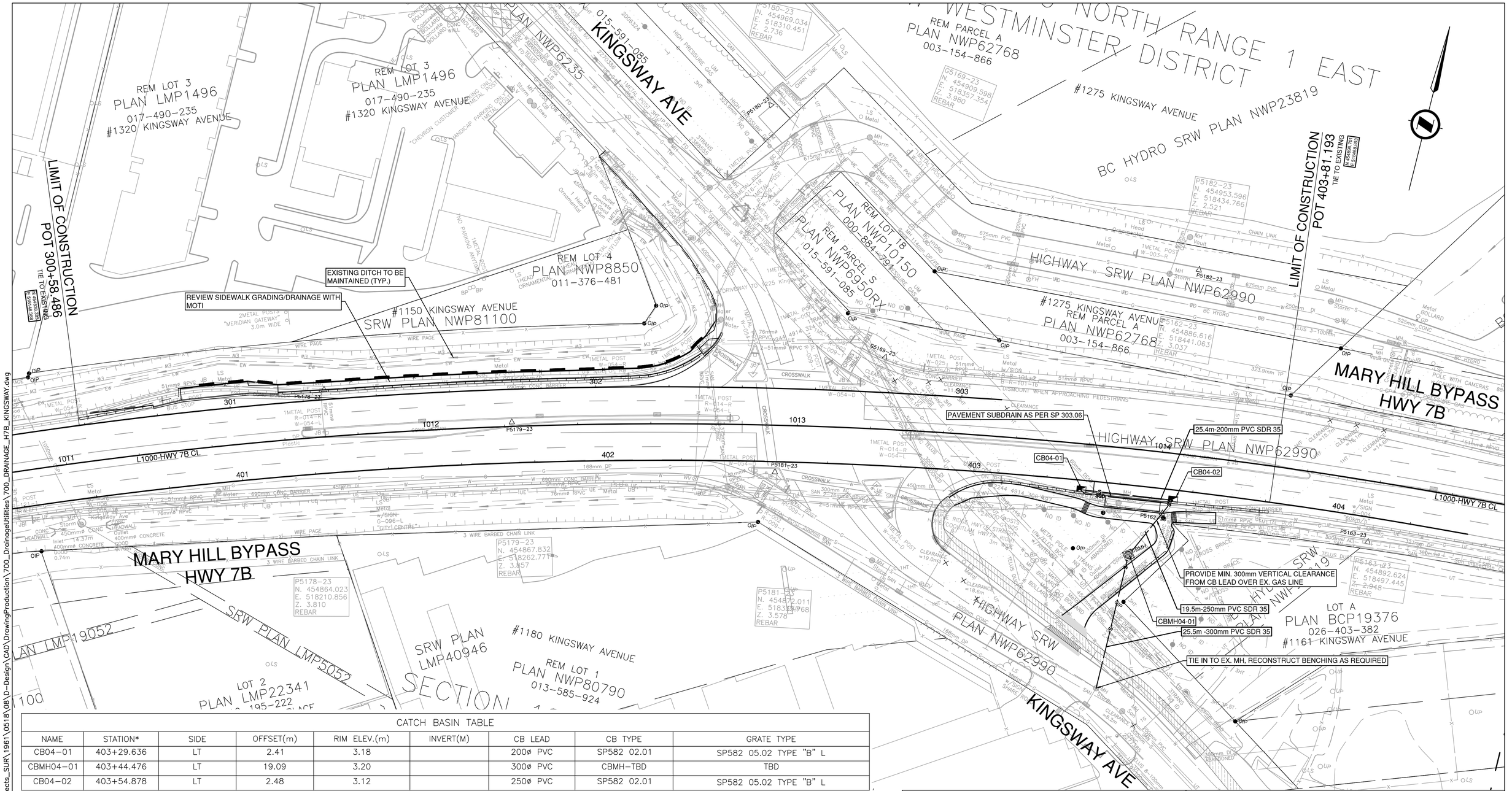

CATCH BASIN TABLE								
NAME	STATION*	SIDE	OFFSET(m)	RIM ELEV.(m)	INVERT(M)	CB LEAD	CB TYPE	GRATE TYPE
CB04-01	403+29.636	LT	2.41	3.18		200ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L
CBMH04-01	403+44.476	LT	19.09	3.20		300ø PVC	CBMH-TBD	TBD
CB04-02	403+54.878	LT	2.48	3.12		250ø PVC	SP582 02.01	SP582 05.02 TYPE "B" L

FOR DESIGN SECTIONS SEE DWG R1-XXXX-1001 TO R1-XXXX-1002

FOR GEOMETRICS & LANING - SIGNING & PAVEMENT MARKING SEE DWG R1-XXXX-401

FOR TYPICAL SECTIONS SEE DWG R1-XXXX-301 TO R1-XXXX-303

FOR PROFILES SEE DWG R1-XXXX-201 TO R1-XXXX-203

FOR PLANS SEE DWG R1-XXXX-101

CATCH BASIN NOTES:

1. THE LOCATION OF THE CATCH BASINS IN RELATION TO CURB AND GUTTER SHALL BE AS SHOWN ON STANDARD DRAWING SP582-05.05.
2. ELEVATIONS GIVEN IN THE TABLES ON THIS DRAWING ARE AT BACK OF CATCH BASIN FRAME RECESSED 40mm BELOW PROPOSED GROUND ELEVATION.
3. DIGITAL DRAWING INFORMATION SHALL NOT BE USED TO OBTAIN COORDINATES FOR THE LAYOUT OF CATCH BASINS. (CATCH BASIN SYMBOL SIZE IS NOT TRUE TO SCALE).
4. CATCH BASIN LEAD PIPE LENGTHS ARE APPROXIMATE ONLY. PAYMENT WILL BE MADE ONLY FOR ACTUAL LENGTHS MEASURED DURING CONSTRUCTION.
5. TEE OR WYE FITTINGS SHALL BE USED TO CONNECT CATCH BASIN LEAD PIPES TO TRUNK LINE IN ABSENCE OF MANHOLE.
6. OUTLET PIPES MAY HAVE TO BE FIELD DETERMINED WITH BENDS AND FITTINGS USED ON CATCH BASIN LEAD PIPES.

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SCALE 0 5 1:500 25m

CAD FILENAME 700_DRAINAGE_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

REV	DATE	REVISIONS	NAME

DRAINAGE

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

DESIGNED	R. MOOTOOSAMY	DATE	2024-04-28
QUALITY CONTROL	I. MACMILLAN	DATE	2024-04-28
QUALITY ASSURANCE	J. BORCH	DATE	2024-04-28
DRAWN	Y. KE	DATE	2024-04-28

PROJECT NUMBER	REG	DRAWING NUMBER	REV
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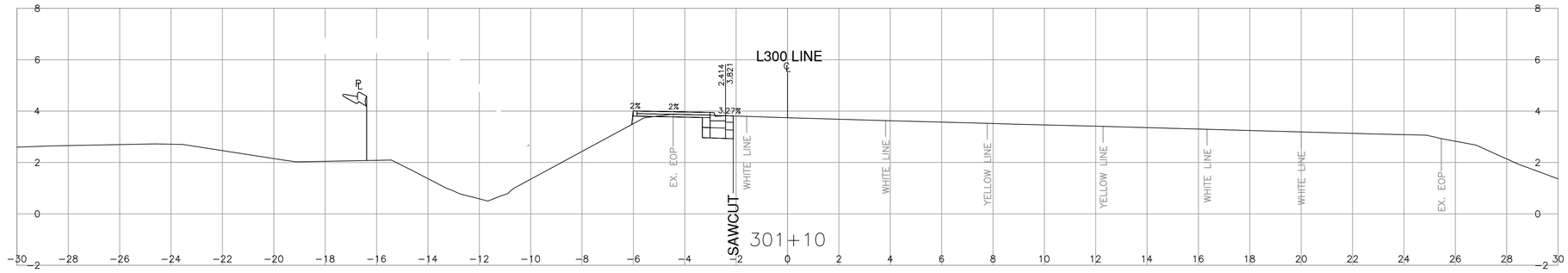

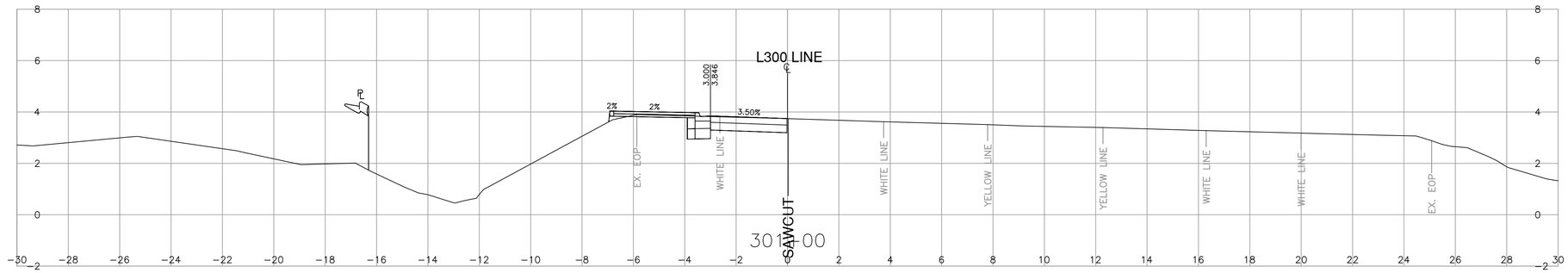

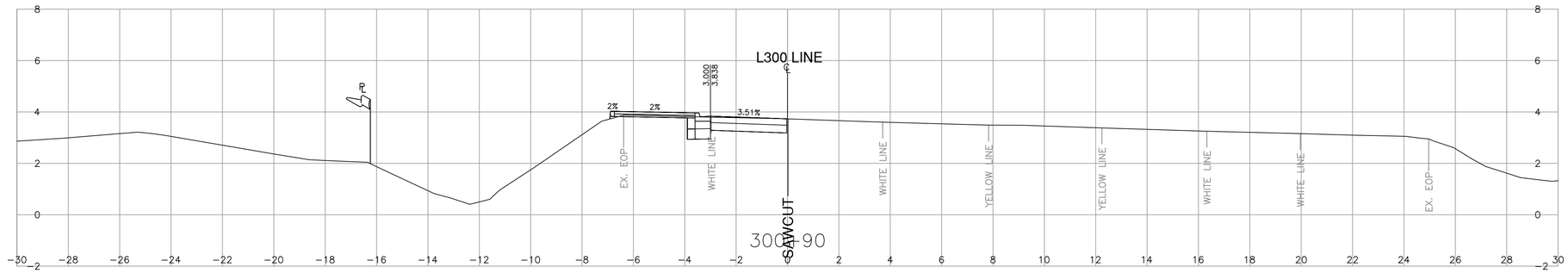

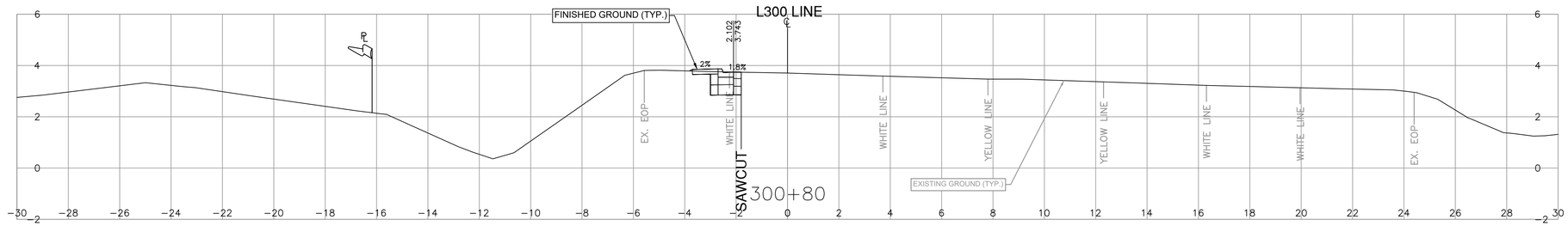

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CAD FILENAME	1000_X-SEC_H7B_KINGSWAY	DESIGNED	R. MOOTOOSAMY DATE 2024-04-28
FILE NUMBER	1961.0518.08	QUALITY CONTROL	I. MACMILLAN DATE 2024-04-28
PLOT DATE	2024-05-01	QUALITY ASSURANCE	J. BORCH DATE 2024-04-28
		DRAWN	Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

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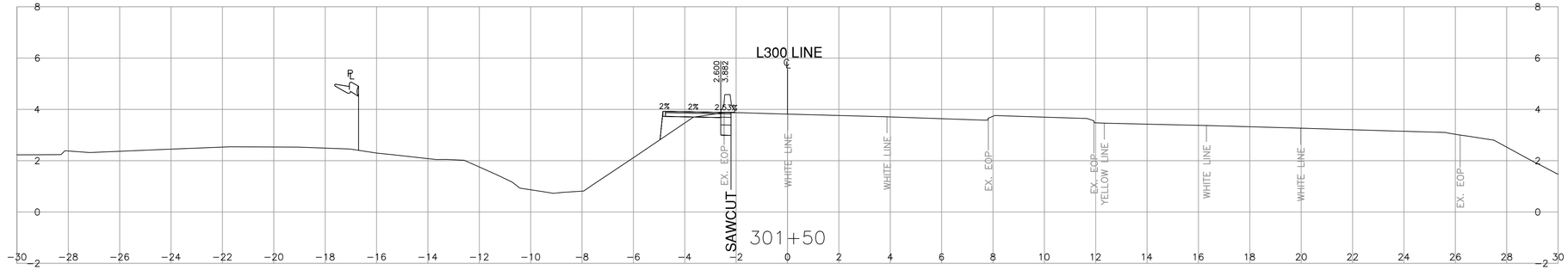

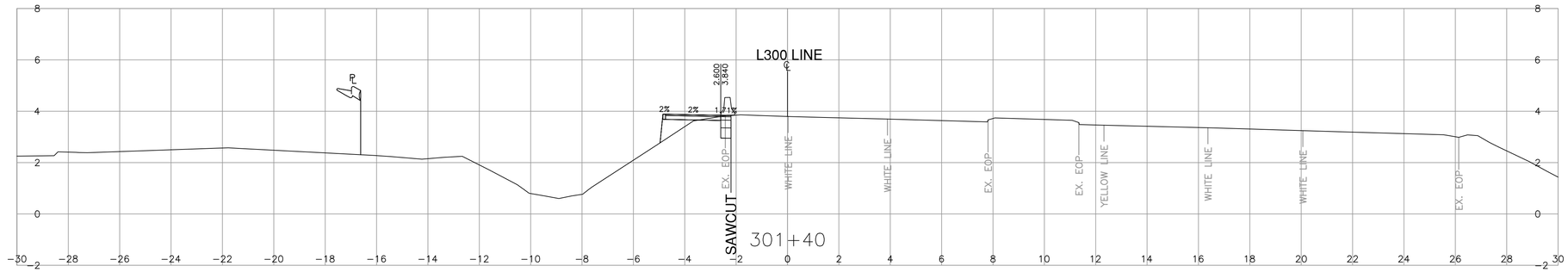

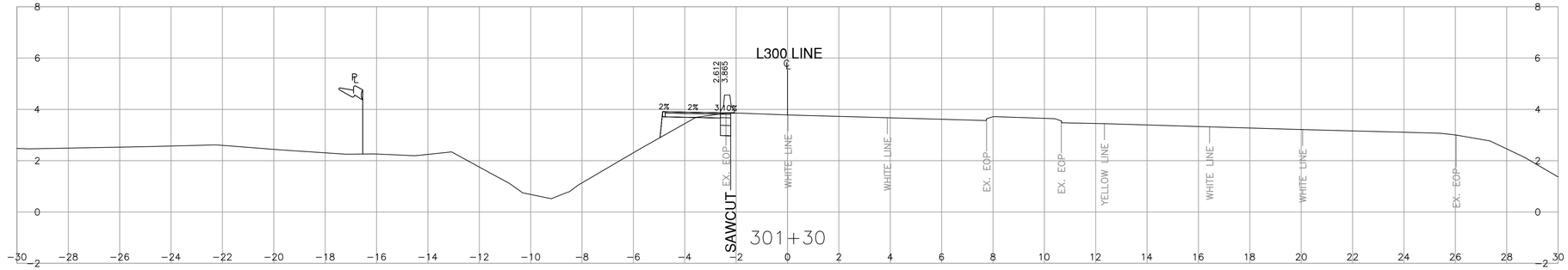

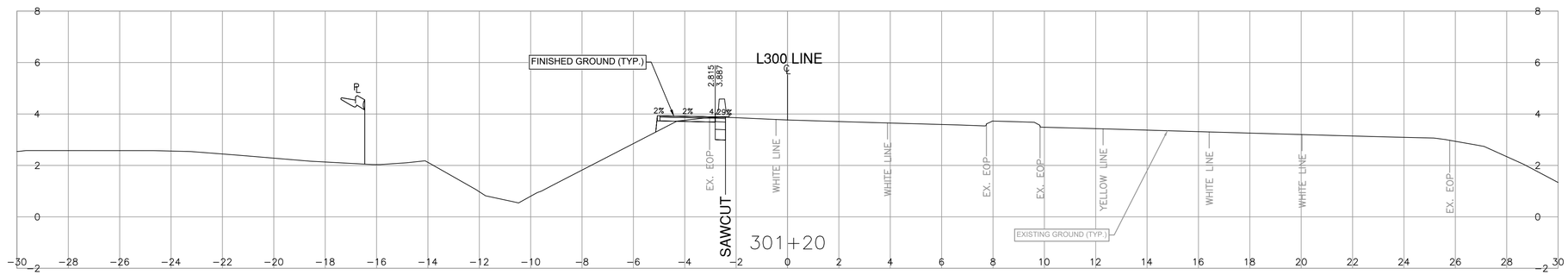

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CAD FILENAME 1000_X-SEC_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

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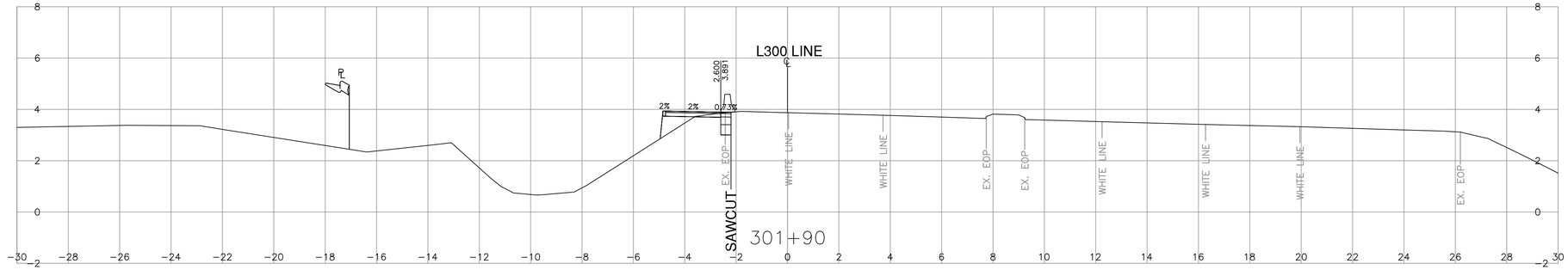

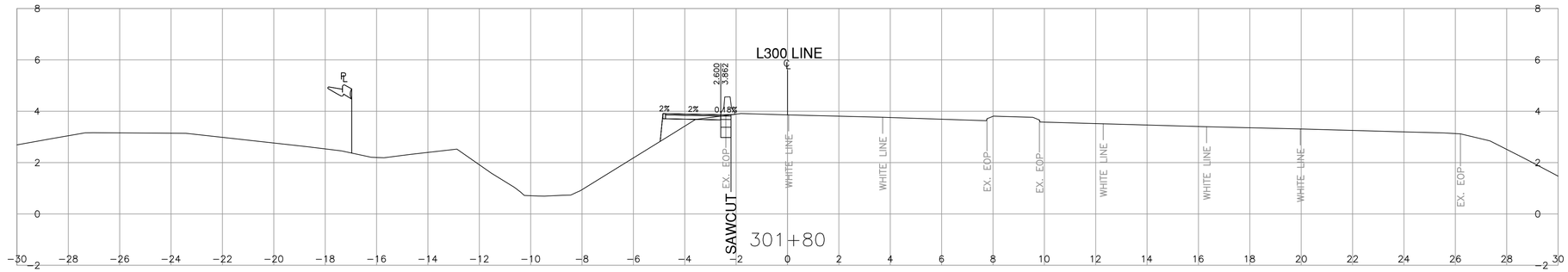

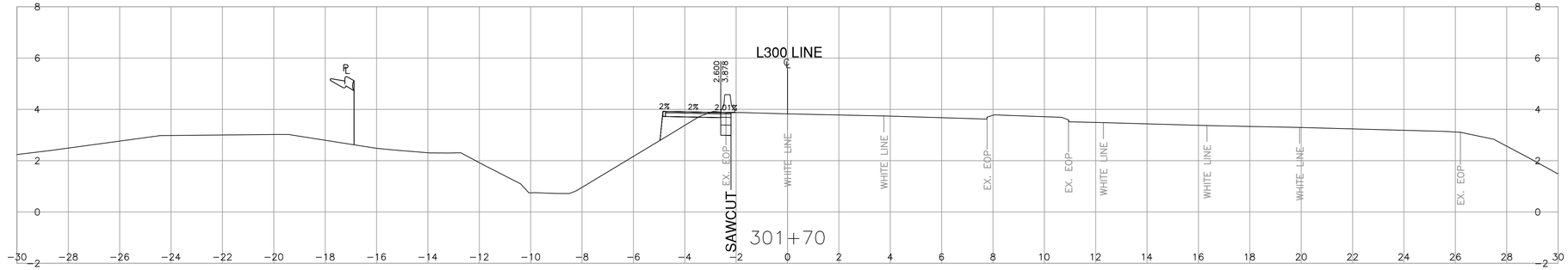

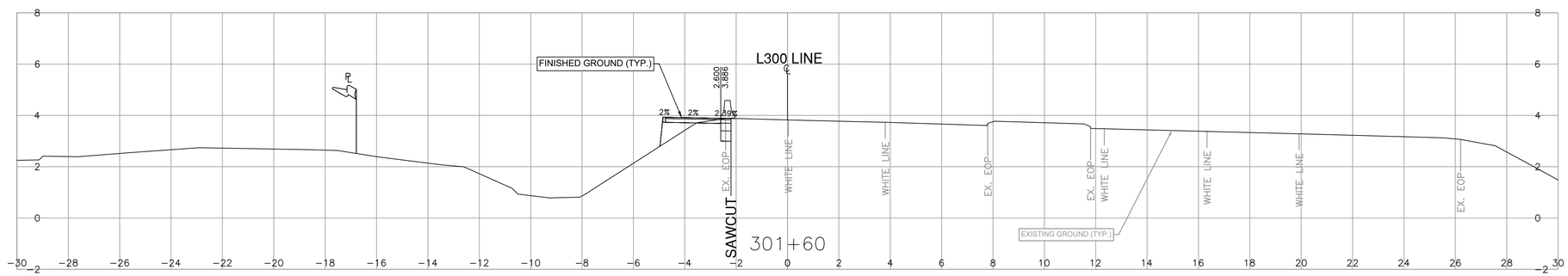

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DESIGN SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

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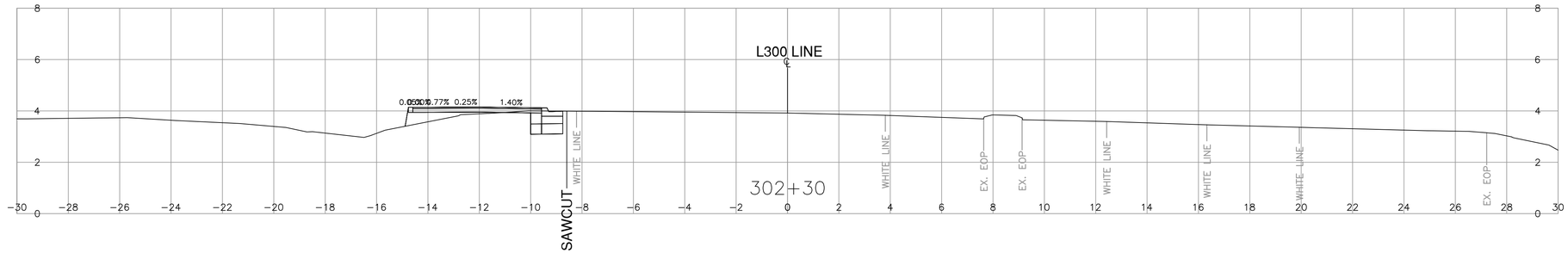

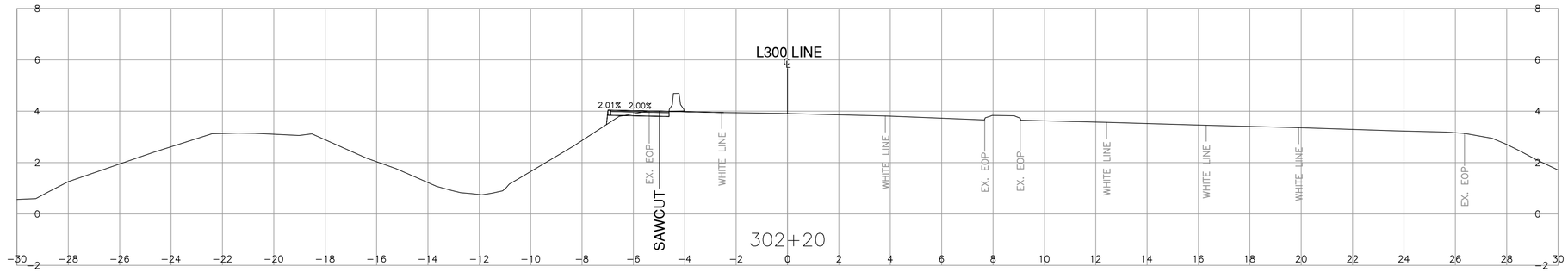

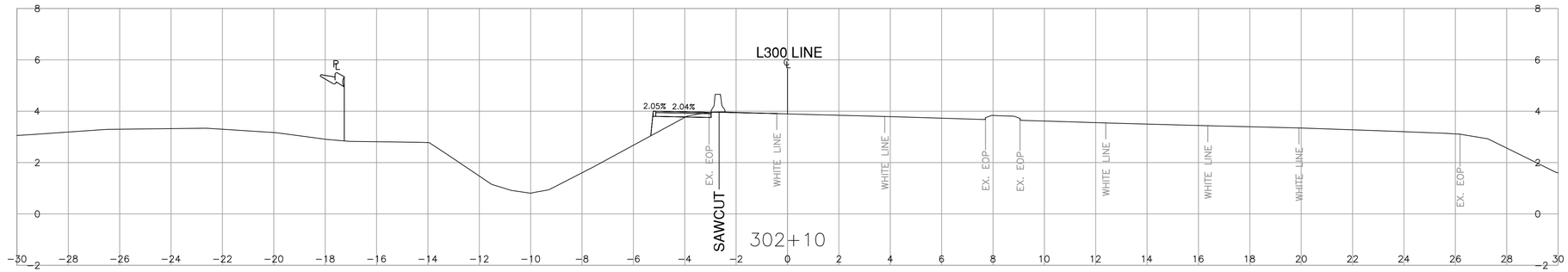

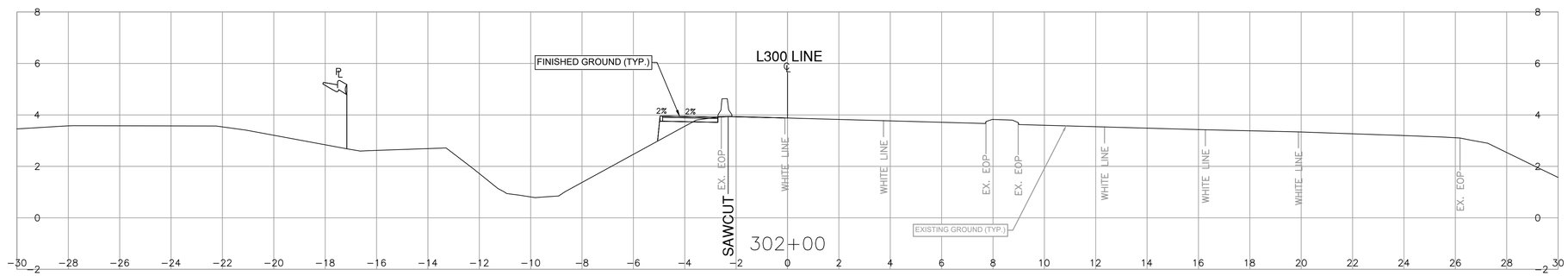

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CAD FILENAME 1000_X-SEC_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
PLOT DATE 2024-05-01

DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
DRAWN Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

SCALE 0 1 1:100 5m

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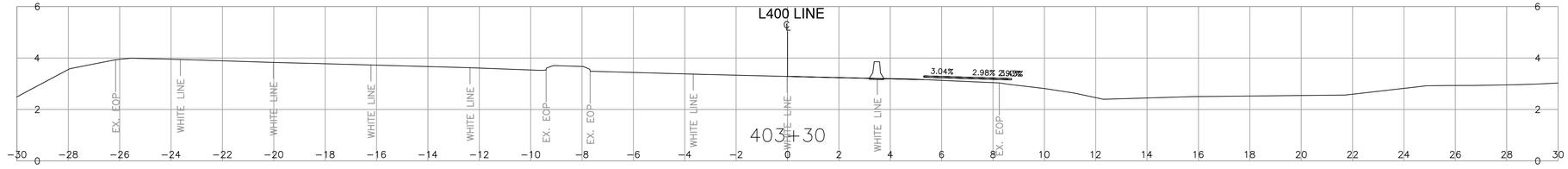

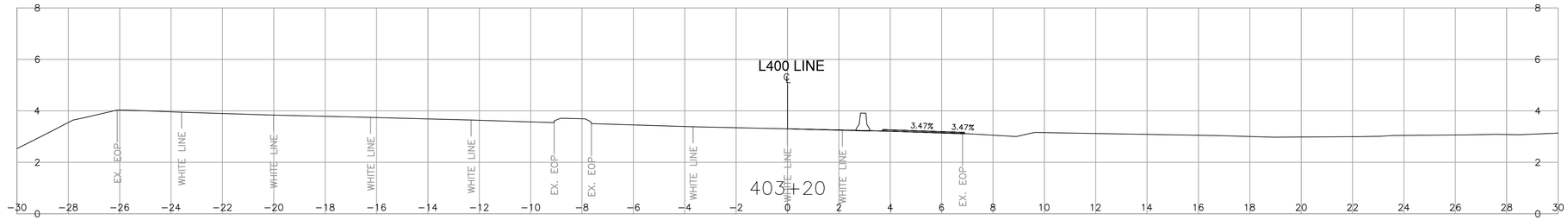

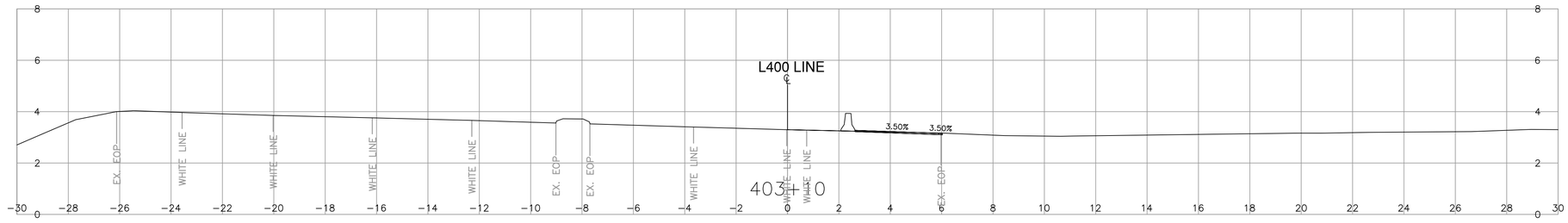

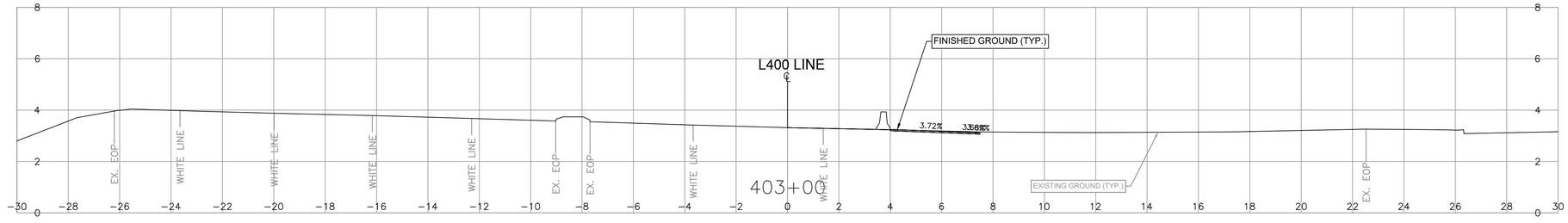

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FILE NUMBER	1961.0518.08	QUALITY CONTROL	I. MACMILLAN DATE 2024-04-28
PLOT DATE	2024-05-01	QUALITY ASSURANCE	J. BORCH DATE 2024-04-28
		DRAWN	Y. KE DATE 2024-04-28

DESIGN SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

SCALE 0 1 1:100 5m

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CAD FILENAME 1000_X-SEC_H7B_KINGSWAY
FILE NUMBER 1961.0518.08
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DESIGNED R. MOOTOOSAMY DATE 2024-04-28
QUALITY CONTROL I. MACMILLAN DATE 2024-04-28
QUALITY ASSURANCE J. BORCH DATE 2024-04-28
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DESIGN SECTIONS

HIGHWAY 7B
BUS STOP AT KINGSWAY INTERSECTION

SCALE 0 1 1:100 5m

PROJECT NUMBER	REG	DRAWING NUMBER	REV
13234-0001	1	R1-XXXX-1006	----

Appendix A2

Vegetation and Wildlife Observation Records

Table A2.1 Vegetation and wildlife species observed at the Sherling Ave site on March 26, 2024.

Common Name	Scientific Name	Status[1]
Vegetation		
evergreen blackberry	*Rubus laciniatus*	Exotic
hardhack	*Spiraea douglasii* var. *douglasii*	Native
Himalayan blackberry	*Rubus armeniacus*	Exotic
horsetail species	*Equisetum* sp.	Native
knotweed species	*Polygonaceae* sp.	Noxious Weed
red alder	*Alnus rubra*	Native
red-osier dogwood	*Cornus sericea*	Native
reed canarygrass	*Phalaris arundinacea*	Exotic
rose species	*Rosa* sp.	Native
salmonberry	*Rubus spectabilis*	Native
thistle species	*Cirsium* sp.	-
willow species	*Salix* sp.	Native
yarrow	*Achillea millefolium*	Exotic
Wildlife		
American crow	*Corvus brachyrhynchos*	Native
American robin	*Turdus migratorius*	Native
bald eagle	*Haliaeetus leucocephalus*	Native
black-capped chickadee	*Poecile atricapillus*	Native
raptor species	-	Native
rock pigeon	*Columba livia*	Exotic

[1] Native = occurs naturally; Exotic = Species that have been moved beyond their natural range as a result of human activity; Noxious Weed = a species listed in Schedule A of the Weed Control Regulation (BC Reg 66/85).

Table A2.2 Vegetation and wildlife species observed at the EB Kingsway Ave site on March 26, 2024.

Common Name	Scientific Name	Status[1]
Vegetation		
black cottonwood	*Populus trichocarpa*	Native
grass species	*Poaceae* sp.	-
hardhack	*Spiraea douglasii* var. *douglasii*	Native
Himalayan blackberry	*Rubus armeniacus*	Exotic
horsetail species	*Equisetum* sp.	Native
rose species	*Rosa* sp.	Native
Wildlife		
Song sparrow	*Melospiza melodia*	Native

[1] Native = occurs naturally; Exotic = Species that have been moved beyond their natural range as a result of human activity; Noxious Weed = a species listed in Schedule A of the Weed Control Regulation (BC Reg 66/85).

Table A2.3 Vegetation and wildlife species observed at the WB Kingsway Ave site on March 26, 2024.

Common Name	Scientific Name	Status[1]
Vegetation		
Black hawthorn	*Crataegus douglasii*	Native
Coastal Douglas-fir	*Pseudotsuga menziesii* var. *menziesii*	Native
Coastal red elderberry	*Sambucus racemosa* var. *arborescens*	Native
Common cattail	*Typha latifolia*	Native
Hardhack	*Spiraea douglasii var. douglasii*	Native
Himalayan blackberry	*Rubus armeniacus*	Exotic
Lesser cattail	*Typha angustifolia*	Exotic
Pacific ninebark	*Physocarpus capitatus*	Native
Pine species	*Pinus* sp.	Exotic
Red alder	*Alnus rubra*	Native
Red-osier dogwood	*Cornus sericea*	Native
Reed canarygrass	*Phalaris arundinacea*	Exotic
Rose species	*Rosa* sp.	Native
Rush species	*Juncus* sp.	Native
Spruce species	*Picea* sp.	Exotic
Wildlife		
American crow	*Corvus brachyrhynchos*	Native
gull species	*Laridae* sp.	Native
mallard	*Anas platyrhynchos*	Native
red-winged blackbird	*Agelaius phoeniceus*	Native
Song sparrow	*Melospiza melodia*	Native

[1] Native = occurs naturally; Exotic = Species that have been moved beyond their natural range as a result of human activity; Noxious Weed = a species listed in Schedule A of the Weed Control Regulation (BC Reg 66/85).

Table A2.4 Vegetation and wildlife species observed at the WB Broadway St site on March 26, 2024.

Common Name	Scientific Name	Status[1]
Vegetation		
black hawthorn	*Crataegus douglasii*	Native
cherry- laurel	*Prunus laurocerasus*	Exotic
coastal red elderberry	*Sambucus racemosa* var. *arborescens*	Native
common cattail	*Typha latifolia*	Native
common snowberry	*Symphoricarpos albus*	Native
hardhack	*Spiraea douglasii* var. *douglasii*	Native
Himalayan blackberry	*Rubus armeniacus*	Exotic
lady fern	*Athyrium filix-femina var. cyclosorum*	Native
osoberry	*Oemleria cerasiformis*	Native
red-osier dogwood	*Cornus sericea*	Native
reed canarygrass	*Phalaris arundinacea*	Exotic
rose species	*Rosa* sp.	Native
salmonberry	*Rubus spectabilis*	Native
sword fern	*Polystichum munitum*	Native
willow species	*Salix* sp.	Native
Wildlife		
American robin	*Turdus migratorius*	Native
Anna's hummingbird	*Calypte anna*	Native
coast mole[2]	*Scapanus orarius*	Native
green-winged teal	*Anas crecca*	Native
song sparrow	*Melospiza melodia*	Native
turkey vulture	*Cathartes aura*	Native

[1] Native = occurs naturally; Exotic = Species that have been moved beyond their natural range as a result of human activity; Noxious Weed = a species listed in Schedule A of the Weed Control Regulation (BC Reg 66/85).

[2] Mole hill.

Table A2.5 Vegetation and wildlife species observed at the EB Broadway St site on March 26, 2024.

Common Name	Scientific Name	Status[1]
Vegetation		
coastal red elderberry	*Sambucus racemosa* var. *arborescens*	Native
common snowberry	*Symphoricarpos albus*	Native
forsythia species	*Forsythia* sp.	Exotic
hardhack	*Spiraea douglasii var. douglasii*	Native
Himalayan blackberry	*Rubus armeniacus*	Exotic
lady fern	*Athyrium filix-femina var. cyclosorum*	Native
lesser cattail	*Typha angustifolia*	Exotic
osoberry	*Oemleria cerasiformis*	Native
platanus species	*Platanus* sp	-
red alder	*Alnus rubra*	Native
red-osier dogwood	*Cornus sericea*	Native
rose species	*Rosa* sp.	Native
salmonberry	*Rubus spectabilis*	Native
sumac species	*Rhus* sp.	-
sword fern	*Polystichum munitum*	Native
Wildlife		
American crow	*Corvus brachyrhynchos*	Native
mallard	*Anas platyrhynchos*	Native

[1] Native = occurs naturally; Exotic = Species that have been moved beyond their natural range as a result of human activity; Noxious Weed = a species listed in Schedule A of the Weed Control Regulation (BC Reg 66/85).

Appendix A3

In Situ Water Quality Results

Table A3.1 In situ water quality results.

Site	Sample Location (10 U)	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Conductivity (µS)
BCWQG		**8 to 11**	**6.5 to 9**	**-**	**-**
Kingsway WB	518218 E 5454871 N	11.2	6.73	9.3	65
Broadway WB	517454 E 5454381 N	8.9	6.65	10.0	197
Broadway EB	517420 E 5454290 N	3.5	5.77	10.4	464

Table A3.2 Stream measurements at each site.

Site	Wetted width*	Wetted depth*	Bankfull width*	Bankfull depth*
Kingsway WB	3.27	0.29	4.1	0.57
Broadway WB	4.4	0.41	4.8	0.7
Broadway EB	3.3	0.25	4.0	0.55

* Average of 2-3 measurements per site. Measurements in meters.