THE CITY OF EDMONTON

PROJECT AGREEMENT
VALLEY LINE WEST LRT

Schedule 5 – D&C Performance Requirements

Part 1: General

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PART 1: GENERAL

SECTION 1-1 - PROJECT DESCRIPTION

1-1.1 PROJECT DESCRIPTION

A. Project Co shall Design and Construct the Valley Line West LRT to be a low floor, urban style, light rail transit system, extending approximately 14km from west of 102 Street Stop, located at City Centre West Mall in Downtown, to Lewis Farms Stop located on 87 Avenue west of Anthony Henday Drive.

B. When completed, the Infrastructure shall provide a fully accessible, safe, efficient, environmentally sustainable and convenient transportation option for the residents of, and visitors to, Edmonton.

C. Project Co shall design the Infrastructure to be sustainable and fully integrated with its urban environment. The philosophy of Sustainable Urban Integration (SUI) underpins and reinforces the idea that the Infrastructure shall support an integrated approach to urban and sustainable Design and Construction, while recognizing the importance and value of creating vital, diverse, and pedestrian friendly environments with a strong sense of place.

D. Project Co shall integrate the Infrastructure with Valley Line LRT Stage 1 such that the Infrastructure interfaces with and is interoperable with Valley Line LRT Stage 1.

1-1.2 MAJOR INFRASTRUCTURE COMPONENTS

1-1.2.1 Infrastructure Alignment and Design Constraints

A. Valley Line West LRT shall connect with Valley Line LRT Stage 1 at 102 Street Stop.

B. Valley Line West LRT shall include at-grade and above-grade sections of Trackway.

C. The following elements of Infrastructure shall be as shown in Figures 5-1A-1 to 5-1A-47 of Appendix 5-1A *[Project Description Drawings]* to this Schedule.

1. the location and alignment of the Mainline Track within the LRT Corridor, including;

    a. number of Tracks;

    b. alignment of Trackway; and

    c. locations of Track crossovers and Secondary Track;

2. the location and general layout of Lewis Farms Park and Ride;

3. the general location of each Stop, Station and Maintenance and Storage Facility defined in Section 1-1.2.2 *[Stops, Stations and Facilities]*;

4. the location of each key Transportation Structure defined in Section 1-1.2.3 *[Key Transportation Structures]* of this Schedule;

5. Roadway, SUP and sidewalk layout, including:

    a. number and configuration of traffic and bike lanes;

    b. general alignment of all SUPs and sidewalks;

    c. bay lengths for turning lanes;

d. turning movements at intersections;

e. the general location of each pedestrian crosswalk;

f. the general location of each bus stop, bus bay and lay-by bay;

g. the general location of all parking lanes; and

h. the general location for all dedicated and shared use parking for DATS vehicles, Kiss and Ride service and maintenance vehicles;

6. the general location of Landscape Fences, noise attenuation fences, and protection fences; and

7. the general location of all Amenity Nodes.

In the event of any conflict, ambiguity or inconsistency between or among the requirements of this Section 1-1.2.1C *[Infrastructure Alignment and Design Constraints]* and any other provision of this Schedule, the requirements of such other provisions shall prevail.

1-1.2.2 Stops, Stations and Facilities

A. The Infrastructure shall include Stops and Stations as set out in Table 1-1.2.2-1 [*Stops and Stations*]:

Table 1-1.2.2-1 Stops and Stations

Item	Location
Alex Decoteau Stop	integrated with the north sidewalk on 102 Avenue between 105 Street and 106 Street
NorQuest Stop	integrated with the west sidewalk on 107 Street between 103 Avenue and 104 Avenue, such that the southern most Platform Access Points are located 3.6 m north of the northeast building corner of the Addiction Recovery Centre (10302 107 Street NW)
MacEwan Arts/112 Street Stop	on 104 Avenue between 111 Street and 113 Street, as close as possible to 112 Street
The Yards/116 Street Stop	on 104 Avenue between 115 Street and 117 Street, as close as possible to 116 Street
Brewery/120 Street Stop	on 104 Avenue between 119 Street and 120 Street

Item	Location
124 Street Stop	on Stony Plain Road between 122 Street and 124 Street, as close as possible to 123 Street
Glenora Stop	on Stony Plain Road between 132 Street and 134 Street, as close as possible to 133 Street
Grovenor/142 Street Stop	on Stony Plain Road between 140 Street and 142 Street, as close as possible to 142 Street
Stony Plain Road/149 Street Stop	on Stony Plain Road between 150 Street and 151 Street
Jasper Place Stop	on 156 Street between 100A Avenue and 100 Avenue
Glenwood/Sherwood Stop	on 156 Street between 96 Avenue and 93A Avenue, as close as possible to 95 Avenue
Meadowlark Stop	on Meadowlark Road between 89 Avenue an 88A Avenue, as close as possible to 88A Avenue
Misericordia Station	an above-grade Station located on the Misericordia Hospital Site
West Edmonton Mall Station	an above-grade Station located on the WEM Site and co-located with the WEM Transit Centre
Aldergrove/Belmead Stop	integrated with the south sidewalk on 87 Avenue between 182 Street and the access to Pembroke Estates (8630 182 St NW), as close as possible to 182 Street
Lewis Farms Stop	on the Lewis Farms Site in between the Lewis Farms Transit Centre and Lewis Farms Park and Ride

B. The Infrastructure shall include Maintenance and Storage Facilities, located as follows:

1. Lewis Farms Storage Facility shall be located at Lewis Farms Site.

2. Gerry Wright OMF Stage 2 shall be located on Gerry Wright OMF Parcel B and Gerry Wright OMF Parcel C.

1-1.2.3 Key Transportation Structures

A. The Infrastructure shall include the following key Transportation Structures:

1. An Elevated Guideway along 87 Avenue (the "**87 Avenue Elevated Guideway**") from west of 163 Street to east of 182 Street;

2. A single span steel haunched girder bridge for LRT, traffic and pedestrians located on Stony Plain Road (the "**Stony Plain Road Bridge**"); and

3. A concrete LRT bridge across Anthony Henday Drive, located along 87 Avenue adjacent to and south of the existing Anthony Henday Drive bridge (the "**Anthony Henday Drive LRT Bridge**").

1-1.2.4 Systems

A. Project Co shall supply the following key systems that form part of, and will be used by the Operator to monitor and control the operation of, the Infrastructure in accordance with Section 6 [*Systems*] of this Schedule:

1. Train Control System with positive Train separation;

2. Train Routing and Priority System with automatic Train routing and Transit Signal Priority to optimize Run Times;

3. CCTV System with full security and operational Closed Circuit Television surveillance of Stops, Stations, LRVs, Utility Complexes, Lewis Farms Storage Facility, WEM Transit Centre, Gerry Wright OMF Building B and the Lewis Farms Park and Ride;

4. radio systems including AFRRCS providing radio network for first responders, the Voice Radio System supporting operations and maintenance staff, and the Data Radio System providing a data radio interface to LRVs within the Lewis Farms Storage Facility and the Gerry Wright OMF;

5. telephones with landline voice communications for operational purposes, and for the convenience and safety of Passengers;

6. Building Supervisory Control and Data Acquisition and Traction Power Supervisory Control and Data Acquisition systems to centrally monitor and control and respond to building and traction power infrastructure, respectively;

7. Network Management System to centrally monitor networked devices;

8. Public Address and Variable Message Signs with automated Train arrival announcements and centrally controlled Passenger announcements; and

9. Master Clock system to synchronize all time-based event logging and reporting.

B. The Infrastructure shall include a Traction Power System to generate and deliver LRV propulsion energy including:

1. Mainline TPSSs as required, co-located at Utility Complexes along the LRT Corridor and located within the Lewis Farms Storage Facility and Gerry Wright OMF Building B, to generate the power supply for operation of the Infrastructure; and

2. an Overhead Catenary System along the LRT Corridor and within Gerry Wright OMF Part B and Lewis Farms Storage Facilities, to distribute the Traction Power supply and deliver propulsion energy to the LRVs.

C. The Infrastructure shall include Traffic Signal Equipment and Traffic Control Devices along the LRT Corridor to safely and efficiently manage the interaction between modes of transportation at all Grade Crossings and at the following signalized intersections which are not intersected by the Trackway**:**

1. Webber Greens Drive / Lewis Farms Transit Centre Access;

2. Webber Greens Drive / 199 Street;

3. 87 Avenue / Ramp to Southbound Anthony Henday Drive;

4. pedestrian activated signal at 87 Avenue / East of 189 Street;

5. pedestrian activated signal at 87 Avenue / West of Aldergrove / Belmead Stop;

6. pedestrian activated signal at 87 Avenue / East of 182 Street;

7. 87 Avenue / 178 Street;

8. 87 Avenue / WEM Parkade Access (177A Street);

9. 87 Avenue / WEM Parkade Access (176A Street);

10. 87 Avenue / 175 Street;

11. 87 Avenue / WEM Transit Centre (174 Street);

12. 87 Avenue / WEM Parking Access (173 Street);

13. pedestrian activated signal at 87 Avenue / WEM Parking Access (172 Street);

14. 87 Avenue / 170 Street;

15. 87 Avenue / 169 Street;

16. 87 Avenue / 165 Street;

17. pedestrian activated signal at 156 Street / 100A Avenue;

18. Stony Plain Road / 102 Avenue;

19. 104 Avenue / 106 Street; and

20. 104 Avenue / 105 Street.

1-1.3 CITY WORKS

A. Promptly following completion of all Project Co antecedent works as set out in Table 1-1.3 *[City Works]*, provide the City with written notice and unimpeded and uninterrupted access to the relevant

Infrastructure for the minimum period specified in Table 1-1.3 *[City Works]* to permit the City to perform the works listed under the heading "City Work Activity" (the "**City Works**").

B. Where Project Co integration assistance is required as identified in Table 1-1.3 *[City Works]* to facilitate completion of any City Works, Project Co shall use commercially reasonable efforts to provide the integration assistance as described in the relevant section of this Schedule.

Table 1-1.3 City Works

City Work Activity	Project Co Integration Assistance	Project Co Antecedent Works
Accept Local Conduits allocated to the City	No	Provide Local Conduit and associated Access Vaults in accordance with Section 6-1.5 *[Systems Duct Bank And Associated Infrastructure]* of this Schedule.
Configure City Cabinets.	No	Provide City Cabinets in accordance with Section 6-1.6 *[Wayside Equipment Enclosures]* of this Schedule.
Activate City Fibre within ETS LAN Cabinets	No	Successfully test City Fibre in accordance with Section 6-1.7.1.1 *[CTS Fibre Optic Cabling]* of this Schedule.
Activate CAT-6 cable within WEM Transit Centre	Yes	Provide CAT-6 cables in accordance with Section 6-1.7.1.2 [*CAT-6 Cabling*] of this Schedule.
Configure City-FDF	No	Provide City-FDF in accordance with Schedule 5, Section 6-1.7.2 *[City Fibre]* of this Schedule.
Cross connect City-FDF/Firewall	Yes	Provide City-FDF/Firewall cross connects in accordance with Section 6-1.7.2 *[City Fibre]* of this Schedule.
Configure ETS IP network for TVMs	No	Provide fibre pairs in Fibre Optic Backbone and ETS LAN Cabinets in accordance with Section 6-1.7.1.1 *[CTS Fibre Optic Cabling]* of this Schedule.
Install Ticket Vending Machines and Validators	No	Reserve space for and provide anchors in accordance with Sections 5-2.6.11.2 *[Ticket Vending Machines]* and 5-2.6.11.3 *[Validators]* of this Schedule. Provide CTS fibre optic cabling and all associated TVM infrastructure in accordance with Section 6-1.17 *[Ticket Vending Machine Infrastructure]* of this Schedule
Remove existing ISD equipment as required for re-use.	Yes	Project Co to terminate power to the existing ISD equipment in accordance with Section 6-4.3 [*Traffic Signal Equipment]* of this Schedule.

City Work Activity	Project Co Integration Assistance	Project Co Antecedent Works
Supply, install and commission all new ISD equipment.	Yes	Provide all necessary power supply and connections for the ISD equipment as well as configure the Traffic Controller including re-installing the existing ISD interface panel within the cabinet in accordance with Section 6-4.3 [*Traffic Signal Equipment*] of this Schedule.
Perform additional testing on Traffic Controller following Project Co's successful bench testing.	Yes	Pre-wire and pre-test the Traffic Controller cabinet in accordance with Section 6-4.3.7 [*Traffic Controller and Cabinet*] of this Schedule.
Establish end to end data connectivity between Traffic Controller and City Traffic Management Centre	No	Establish fibre connectivity between the main Data Centre and the Traffic Controller location in accordance with Section 6-4.3.7 [*Traffic Controller and Cabinet*] of this Schedule.
Test and commission support of Traffic Controller after installation.	Yes	Install the Traffic Controller cabinet in accordance with Section 6-4.3.7 [*Traffic Controller and Cabinet*] of this Schedule.
Confirm interfaces with the Traffic Controller and the City Traffic Management Centre after installation.	Yes	Install the Traffic Controller cabinet in accordance with Section 6-4.3.7 [*Traffic Controller and Cabinet*] of this Schedule.
Remove all existing Opticom emergency priority equipment.	Yes	Project Co to terminate power to the existing Opticom equipment in accordance with Section 6-4.3.4 [*Opticom Emergency Pre-emption Equipment*].
Supply, install, and commission all Opticom emergency priority.	Yes	Future proof appropriate Traffic Controllers for installation of Opticom emergency priority equipment in accordance with Section 6-4.3.7 *[Traffic Controller and Cabinet]* of this Schedule.
Configure ETS Network at WEM Transit Centre	Yes	Provide power and cabinet for integration of ETS network in accordance with Section 6-1.7 [*Fibre Optic Networking*] and Section 6-1.20 [*Public Address/ Variable Message Signs*] of this Schedule
Root prune or branch prune trees as required to accommodate construction activities or to mitigate damage to Preservation Trees during construction.	Yes	Identify tree roots or tree branches that will require pruning to accommodate construction activities and access or damaged during construction in Accordance with Section 2-14.15 [*Tree Retention, Removal, and Protection*] of this Schedule.

City Work Activity	Project Co Integration Assistance	Project Co Antecedent Works
Perform tree damage correction measures and post Construction care if damage to a Protected Tree is equal to or greater than 30% of the entire tree, including tree trunk, tree canopy and root system.	Yes	Evaluate the damage to the Protected Tree in Accordance with Section 2-14.15 [*Tree Retention, Removal, and Protection]* of This Schedule.
Supply and install bus stop furniture	No	Provide amenity pads. City to supply and install bus stop furniture in accordance with Section 3-2.6E *[Bus Stops]* of this Schedule.
Supply and install "regulatory", "traffic control" and "information" Roadway Signage and supports.	No	All related Roadway signage design including location and content Accepted in accordance with Section 3-2.8.1 *[Signage]* of this Schedule.
Supply and install all permanent Roadway, pedestrian and bicycle pavement markings.	No	All related Roadway or SUP surfaces completed, and lane painting design Accepted in accordance with Section 3-2.8.3 *[Pavement Markings]* of this Schedule. Provide the City with sufficient notice that the Roadway will be complete and ready for public use.
Supply and install Global Wayfinding Maps or cap and cover conduit for future installation.	No	Reserve space for Global Wayfinding Maps within Stop/Stations in accordance with Section 5-2.6.11.5 [*Global Wayfinding Maps]* of this Schedule. Provide systems infrastructure to each Global Wayfinding Map in accordance with Section 6-1.18.3 [*Global Wayfinding*] of this Schedule.
Supply and install ETS TV Screens.	No	Reserve space for and provide ETS TV screen enclosures in accordance with Section 5-2.6.11.6 *[ETS TV Screens]* of this Schedule. Provide systems infrastructure for ETS TV screens in accordance with Section 6-1.18.1 *[ETS TV Screens]* of this Schedule.
Supply and install corporate advertising screens.	No	Reserve space for and provide anchors in accordance with 5-2.6.11.7 *[Corporate Advertising Screens]* of this Schedule. Provide CTS fibre optic cabling and all associated corporate advertising screen infrastructure in accordance with Section 6-1.18.2 *[Corporate Advertising Screens]* of this Schedule.
Integrate card readers with the City C-Cure card access system	Yes	Provide access card readers, interfaced directly with the City's C-Cure card access system in accordance with Section 6-1.15 [*Security and Alarm System*] of this Schedule.

C. The City shall:

1. cause any City Persons performing City Works, on a worksite for which Project Co or a Project Contractor is the designated Prime Contractor, to comply with Project Co's reasonable Site rules, access control protocols and instructions relating to health, safety and security; and

2. reasonably coordinate the performance of the City Work with Project Co, so as to minimize any disruption caused by performance of the City Work.

1-1.4 INTEGRATION WITH VALLEY LINE LRT STAGE 1

1-1.4.1 Integration Responsibilities

A. Project Co shall be responsible for the civil and Systems integration of all components that make up the Valley Line West LRT with the corresponding components of the Valley Line LRT Stage 1 such that the Valley Line LRT running from Mill Woods Stop in the southeast to Lewis Farms Stop in the west will be a seamless and fully functioning light rail transit system.

1-1.4.2 Scheduling and Coordination of Integration Points

A. Coordinate and schedule, with TransEd Partners or the Operator, the work associated with the integration works in accordance with, as a minimum, the items listed within Table 1-1.4 [*Integration with Valley Line LRT Stage 1*] and with the following restrictions:

1. Project Co shall carry out all integration activities and construction works within the Gerry Wright OMF Site so as to not interfere with Gerry Wright OMF Stage 1 operations or Valley Line LRT Stage 1 passenger service.

    a. Notwithstanding the above, Project Co may schedule two (2) 12-hour periods on a Non-Business Day during which they may disrupt Gerry Wright OMF Stage 1 operations, provided that:

        i. not less than 90 days prior to commencing any integration activities or construction works within the Gerry Wright OMF Site, Project Co submits a work plan (the "**Gerry Wright OMF Work Plan**") for all integration, construction and commissioning activities including any safe operating restrictions and operating restrictions; and

        ii. Project Co maintains at least one (1) unfettered Track access between the Gerry Wright OMF Part A and Mainline Track at all times.

2. One (1) closure of both the 102 Street Stop and the Tracks at the 102 Street Stop will be permitted up to a maximum period of 14 consecutive days for Project Co to carry out any required construction works and integration activities, provided that Project Co provides the City with 180 days prior written notice of the planned commencement of this closure, at which time Project Co shall also submit a work plan the ("**102 Street Stop Work Plan**") for the construction, integration, and commissioning activities including any safe operating restrictions and operating restrictions.

B. The City shall provide Project Co access to the Valley Line LRT Stage 1 for up to a maximum of one 21 consecutive day period to carry-out any non-intrusive, visual surveys, provided that:

1. Project Co submits a survey schedule and plan ("**Valley Line LRT Stage 1 Survey Schedule and Plan"**) that details locations and number of Project Co representatives 90 days prior to commencement of the proposed access period; and

2. access along the Valley Line LRT Stage 1 shall be limited to the following locations:

    a. Gerry Wright OMF Stage 1;

    b. data centre [redacted];

    c. Churchill Connector Utility Complex;

    d. Davies Station;

    e. 102 Street Stop;

    f. one (1) traffic controller cabinet along the Valley Line LRT Stage 1;

    g. one (1) access vault along the Valley Line LRT Stage 1; and

    h. one (1) additional utility complex along the Valley Line LRT Stage 1.

C. Ensure all activities defined in Section 1-1.4.2 [*Scheduling and Coordination of Integration Points*] of this Schedule are including in the Valley Line LRT Stage 1 and Operator Integration Schedule in accordance with Schedule 3 [*Construction Schedule*].

1-1.4.3 Specific Integration Activities

A. Without limiting the generality of Section 1-1.4.1 [*Integration Responsibilities*], Project Co shall be responsible for the specific major integration activities listed in Table 1-1.4 [*Integration with Valley Line LRT Stage 1*]. This listing is not intended to be complete and Project Co shall remain fully responsible for all integration activities as described generally in Section 1-1.4.1A and specifically throughout these Project Requirements.

B. Refer to Section 1-2.10.8 *[Interface with Valley Line LRT Stage 1 along 102 Avenue]* for additional requirements regarding integration of the streetscape elements along 102 Avenue between 102 Street and 103 Street.

C. Carry out as a minimum all integration activities listed in Table 1-1.4 [*Integration with Valley Line LRT Stage 1*] so as to minimize impacts and interference to the Valley Line LRT Stage 1 operations unless otherwise described in Section 1-1.4.2 [*Scheduling and Coordination of Integration Points*].

Table 1-1.4 Integration with Valley Line LRT Stage 1

Integration Activity	Specific Schedule 5 Reference	Integration Scope
102 Avenue		
Track	Section 3-1.4	Temporary and permanent removal of friction buffer, tie-in and transition the track and track structure (including modification of Stage 1 embedded track design in location of friction buffer after it has been permanently removed to match the adjacent track structure) and the supporting subbase infrastructure between Valley Line LRT Stage 2 into the existing fully operational Valley Line LRT Stage 1 at 102 Street Stop, where the track of Valley Line LRT Stage 1 terminates just to the west side of 102 Street Stop.

Integration Activity	Specific Schedule 5 Reference	Integration Scope
Roadway and sidewalk	Section 1-2.10.8 and 3-2.11.11O	Integrate the Roadways along 102 Avenue with the existing Roadways constructed for the Valley Line LRT Stage 1. Integration points will include the horizontal alignment, vertical alignment and construction materials for the road, bike lanes, sidewalks, and associated curbs.
Overhead Catenary System	Section 6-3.1.2A, and 6-3.3.3C	Integrate the OCS for the Valley Line LRT Stage 2 into the Valley Line LRT Stage 1 at 102 Street Stop, where the OCS on Valley Line LRT Stage 1 terminates just to the west side of 102 Street Stop.
Systems Duct Banks	Section 6-1.5D	Integrate the Valley Line LRT Stage 2 Systems Duct Bank with the Systems Duct Bank deployed in Valley Line LRT Stage 1 at the west end of the 102 Street Stop
Train Control System	Section 6-1.3E	Integrate the TCS for Valley Line LRT Stage 2 and the TCS provided for Valley Line LRT Stage 1 to prevent operational deadlocking between NorQuest Stop and the Churchill Stop. Integration of the TCS also needed at the Gerry Wright OMF.
Train Routing and Priority System	Section 6-1.4D	Integrate the TRPS for Valley Line LRT Stage 2 and the TRPS provided for Valley Line LRT Stage 1 to prevent operational deadlocking between NorQuest Stop and the Churchill Stop.
Traction Power: Transfer Trip	Section 6-2.3.15.4F	Provide interface to and termination of the fibers for a complete operating transfer trip function. Demonstrate that the installed traction electrification system functions properly in relation to specifically the transfer-trip between existing Churchill Utility Complex and the new 107 Street/104 Avenue Utility Complex
Traffic Signal operations	Section 6-4.3.7O	Facilitate the integration of the Traffic Signal operations along 102 Avenue for Valley Line LRT Stage 1 and Valley Line LRT Stage 2 by performing modifications to the Traffic Controller at 102 Avenue / 101 Street, 102 Avenue / 100A Avenue, and 102 Avenue / 100 Street intersections.
Gerry Wright OMF		
Track at Gerry Wright OMF between Gerry Wright OMF Part A and Gerry Wright OMF Part B	Section 3-1.4, Section 8-2.5.2D	Tie-in and transition the track with supporting subbase infrastructure between Valley Line LRT Stage 2 into the existing fully operational Valley Line LRT Stage 1 at the Gerry Wright OMF. Integration points will include a connection to the southern-most track and to the northern-most track such that there is a continuous loop between Gerry Wright OMF Parcel A and Gerry Wright OMF Parcel B.
Roadway	Section 8-2.5.4	Integrate the Roadways connecting Gerry Wright OMF Building B and Gerry Wright OMF Building A Roadways constructed for the Valley Line LRT Stage 1. Integration points will include the horizontal alignment, vertical alignment and construction materials for the road, sidewalks and associated curbs.
Overhead Catenary System	Section 6-3.1.2A, and 6-3.3.3C	Integrate the OCS for the Valley Line LRT Stage 2 into the Valley Line LRT Stage 1 at the Gerry Wright OMF Parcel A.

Integration Activity	Specific Schedule 5 Reference	Integration Scope
Stormwater Management at Gerry Wright OMF	Section 3-5.6.4	Connect the Stormwater Management System constructed by Other Contractors for Gerry Wright OMF Parcel A to the Stormwater Management System required for the Gerry Wight OMF Parcel B within Gerry Wright OMF Parcel C.
Yard Control System	Section 6-1.3.2B	Integrate the Yard Control System for Gerry Wright OMF Parcel B with the Gerry Wright OMF Parcel A Yard Control System.
Data Radio System	Section 6-1.12.3.2E	Integrate the Data Radio system for the Valley Line LRT Stage 2 with the Data Radio System deployed in the Valley Line LRT Stage 1. Integration points will include the Gerry Wright OMF Part A.
Telephones	Section 6-1.13.2F, 6-1.13.2G and 6-1.13.2I	Integrate the telephone system for the Valley Line LRT Stage 2 with the telephone system deployed in the Valley Line LRT Stage 1. Integration points will include Gerry Wright OMF Part A and Lewis Farms Storage Facility. Integration for the telephone system will include equipment specified in specified in Section 6-1.13.2B. of this Schedule
Building SCADA	Section 6-1.14.2G	An independent Building SCADA system is to be provided that can be integrated into the future ICS that is being procured for the Gerry Wright OMF.
Traction Power: SCADA	Section 6-2.1.2B,	Provide system integration between the Valley Line LRT Stage 1 and Valley Line LRT Stage 2 for control and protection schemes for the Traction Power System. An independent Traction Power SCADA system is to be provided that can be integrated into the future ICS that is being procured for the Gerry Wright OMF.
Administrative Data Network	Section 8-1.3.4.2A	Integrate the administrative data network for Valley Line LRT Stage 2 with the administrative data network deployed in Valley Line LRT Stage 1.
Site Security at the Gerry Wright OMF	Section 8-2.5.3	Remove permanent fencing on the east side of the Gerry Wright OMF Stage 1 and provide continuous and permanent fencing enclosing the Gerry Wright OMF.
Line Wide		
Fibre Optic Networking	Section 6-1.7.1N	Integrate the Communications Transmission System (CTS) for the Valley Line LRT Stage 2 with the CTS deployed in Valley Line LRT Stage 1. Integration points will include the use of City Conduit within [redacted]
Data Centres	Section 6-1.8Q	Integrate all Data Centre equipment for the Valley Line LRT Stage 2 with the Data Centre equipment deployed in Valley Line LRT Stage 1. Integration points will include the Churchill Connector Utility Complex and Gerry Wright OMF Part A. Integration will include redundant components at each Data Centre and between Data Centres used in disaster recovery.
CCTV System	Section 6-1.11.2.1H	Integrate the Valley Line CCTV System for the Valley Line LRT Stage 2 with the CCTV system deployed in Valley Line LRT Stage 1. Integration points will include the Churchill Connector Utility Complex and Gerry Wright OMF Part A. Integration of the Valley Line CCTV System includes the LRT CCTV Subsystem covering all fixed facilities.

Integration Activity	Specific Schedule 5 Reference	Integration Scope
Voice Radio System	Section 6-1.12.2.2A	Integrate the Voice Radio System for the Valley Line LRT Stage 2 with the Voice Radio System deployed in Valley Line LRT Stage 1. Integration points will include access points deployed along the Valley Line LRT Stage 2.
Telephones	Section 6-1.13.2I	Integrate the Voice Recording System for the Valley Line LRT Stage 2 with the Voice Recording System deployed in the Valley Line LRT Stage 1. Integration points will include the Churchill Connector Utility Complex and Gerry Wright OMF Part A. Integration for the Voice Recording System will include the telephone system equipment specified in specified in Section 6-1.13.2B. of this Schedule
Security Alarms	Section 6-1.15J	Integrate the Security and Alarm system for the Valley Line LRT Stage 2 with the existing Security and Alarm system deployed in Valley Line LRT Stage 1. Integration points will include each Station and Stop along the Valley Line Stage LRT 2, the Lewis Farms Storage Facility, Gerry Wright OMF Part A, and Gerry Wright OMF Part B. Integration for the Security and Alarm system will include equipment specified in Section 6-1.15B. of this Schedule
Network Management System	Section 6-1.16G	Integrate the NMS for the Valley Line LRT Stage 2 with the existing NMS deployed in Valley Line LRT Stage 1. Integration points will include the Gerry Wright OMF Part A. Integration will include equipment at all Stops and Stations along the Valley Line LRT Stage 2, the Lewis Farms Storage Facility and Gerry Wright OMF Part A, and Gerry Wright OMF Part B. In coordination with the Operator.
Public Address/Variable Message Signs (PA/VMS)	Section 6-1.20Aand 6-1.20.2F	Integrate the PA/VMS system for the Valley Line LRT Stage 2 with the existing PA/VMS system deployed in Valley Line LRT Stage 1. Integration points will include the Lewis Farms Storage Facility and Gerry Wright OMF Part A. Integration will include equipment at all Stops and Stations along the Valley Line LRT Stage 2, the Lewis Farms Storage Facility and Gerry Wright OMF Part A, and Gerry Wright OMF Part B and the WEM Transit Centre
ETS Variable Message Signs	Section 6-1.20A	Integrate the ETS VMS system for the VMS at the bus bays at the WEM Transit Centre with the City's existing VMS system. Integration points for the ETS VMS system will include the WEM Transit Centre.
Overhead Catenary System	Section 6-3.1.2A and 6-3.3.3C	Integrate the SCADA requirements for the OCS motorized disconnect for the Valley Line LRT Stage 2 into the Valley Line LRT Stage 1 Traction Power SCADA system.

1-1.4.4 City Responsibilities

A. The City shall cause TransEd Partners to reasonably coordinate with Project Co, so as to minimize disruption to the performance of the Project Work and to the operations of Valley Line LRT Stage 1.

1-1.5 INTERPRETATION

A. This Schedule is written as an output specification and defines what Project Co shall achieve in the Design and Construction. Except as expressly stated otherwise, Project Co shall carry out the Design and Construction as required and contemplated by each provision of this Schedule and its Appendices whether or not the provision is written as an obligation of Project Co or is stated in the imperative form.

B. Where “cost effective”, “appropriate”, “sufficient”, “minimize”, “safe”, “robust”, “accurate”, “efficient”, “reliable” and related and similar terms are used, they are to be construed and interpreted in terms of whether they are cost effective, appropriate, sufficient, minimizing, safe, robust, accurate, efficient, reliable, etc. from the perspective of a prudent public owner of a light rail transit system who balances capital costs against maintenance, operations, efficiency and other non-capital costs over the life of the system.

C. Unless explicitly stated otherwise, wherever the term “existing” is used in this Agreement, it shall be understood to mean existing as of the Effective Date.

1-1.6 DESIGN AND CONSTRUCTION

1-1.6.1 Design and Construction Requirements are Complementary

A. The Design and Construction Requirements are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with Good Industry Practice.

1-1.6.2 Equivalents and Substitutes

A. Any proposed deviation from, or equivalent or substitute to, the requirements of this Schedule 5 *[D&C Performance Requirements]* shall be submitted to the City as an Innovation Proposal, pursuant to Schedule 13 *[Changes]*.

1-1.6.3 Infrastructure to be New

A. All Infrastructure shall be new unless the Design and Construction Requirements expressly specify otherwise.

1-1.6.4 Sustainability General Requirements

1-1.6.4.1 General

A. Implement strategies for sustainable Design and Construction as follows:

1. minimize noise, vibration, odor and exhaust;

2. minimize the heat island effect on sun-exposed areas;

3. minimize the energy consumption of the Infrastructure;

4. maximize the use of materials with low embodied carbon;

5. maximize the use of bio-based products, excluding animal skin, when selecting materials for permanently installed products; and

6. minimize light pollution.

1-1.6.4.2 ENVISION®

A. Using the self-assessment tool offered by the Institute for Sustainable Infrastructure (ISI) based on Version 3 of the sustainable infrastructure framework ENVISION®, submit a report at each anniversary of the Effective Date, starting with the first anniversary, under the lead of and signed by a certified ENVISION® Sustainability Professional (ENV SP) retained by Project Co, with experience coordinating a minimum of two (2) projects having achieved at least an ENVISION® verification award level of "Verified", which shall include:

1. the most likely number of points that can be achieved (for each of the 64 credits; for the purpose of this Section these points are called "achievable points");

2. documentation demonstrating how the achievable points were determined; and

3. a proposal for additional measures that could be implemented to achieve at least 35% of the total applicable ENVISION® points, if this percentage is not already achieved.

1-1.6.4.3 Building Structures Specific Requirements

A. Comply with the requirements specific to WEM Station and Misericordia Station in accordance with Section 5-2.1.2 [*Sustainability Requirements*] of this Schedule.

B. Comply with the requirements specific to the Lewis Farms Storage Facility and the Gerry Wright OMF Building B in accordance with Section 8-3.6.1 [*Lewis Farms Storage Facility Sustainability Requirements*] and Section 8-2.6.1 [*Gerry Wright OMF Sustainability Requirements*] respectively, of this Schedule.

1-1.6.4.4 Water

A. Minimize water usage by complying with the requirements listed in Section 2-14.23 [*Irrigation*] of this Schedule and the Valley Line West LRT Facilities Design and Construction Standards.

B. Manage Stormwater in compliance with Section 3-5.6 [*Stormwater Management- Specific Facilities*] of this Schedule, except for facilities complying with LEED® in accordance with Section 8-3.6.1 [*Lewis Farms Storage Facility Sustainability Requirements*] and Section 8-2.6.1 [*Gerry Wright OMF Sustainability Requirements*] of this Schedule, where the applicable LEED® requirements shall be met instead.

1-1.6.4.5 Lighting and Energy Efficiency

A. Incorporate the use of daylighting control strategies to the facility lighting design in accordance with the Valley Line West LRT Facilities Design and Construction Standards.

B. Provide high-efficiency lighting products in all fixtures in accordance with Section 2-6 [*Lighting*] of this Schedule and the Valley Line West LRT Facilities Design and Construction Standards.

C. Minimize total lumen output projected on adjacent properties or natural areas in accordance with Section 2-6 [*Lighting*] of this Schedule.

1-1.6.4.6 Materials

A. Submit a sustainable procurement policy report (**"Sustainable Procurement Policy Report"**) at each anniversary of the Effective Date, starting with the first anniversary:

1. following the requirements set out by the ENVISION® framework, credit RA1.1 "Support Sustainable Procurement Practices" to achieve at least an "Improved" level, as verified by an ENVISION® Sustainability Professional (ENV SP) retained by Project Co, with experience coordinating a minimum of two (2) projects having achieved at least an ENVISION® verification award level of "Verified".

B. Comply with the durable building requirements in accordance with Section 5-1.3.1 [*Durability*] of this Schedule.

C. The use of the following materials and chemicals is not permitted:

1. cadmium: with the exception of batteries;

2. lead: with the exception of batteries;

3. mercury;

4. phthalates;

5. wood treatments containing creosote, arsenic or pentachlorophenol; and

6. any by-product that causes eutrophication, acidification, and de-oxygenation of waterways during the manufacturing process or at the end of life disposal.

1-1.6.4.7 Waste

A. Provide waste and recycling receptacles at all Stops and Stations in accordance with Section 5-2.6.10 [*Waste and Recycling Receptacles*], Section 5-2.10.1H [*Program Requirements*] and Section 5-2.11.1E [*Program Requirements*] of this Schedule.

1-1.6.4.8 Construction

A. Commissioning shall comply with Section 9 *[Commissioning]* of Schedule 4 *[Design and Construction Protocols]*.

B. Comply with the Community Standards Bylaw 14600 and Vehicle Idle Control Directive A1477 in accordance with Section 3 [*City of Edmonton Environmental Requirements*] of Schedule 10 [*Environmental Performance Requirements*].

C. Handling of all waste associated with Construction and Deconstruction Work or other demolition, removal, relocation, abandonment or rehabilitation forming part of the Project Work shall be in accordance with Section 1-7.2 [*Material Storage, Handling and Disposal*] of this Schedule.

D. All construction and demolition waste shall be recycled in accordance with Section 15.5 [*Hazardous Substances and Waste*] of Schedule 10 [*Environmental Performance Requirements*].

E. Implement an indoor air quality management plan during Construction that complies with the following:

1. SMACNA IAQ Guidelines for Occupied Buildings under Construction;

2. protects all materials from moisture damage;

3. includes the use of a MERV 8 filter when operating any permanent air handling equipment during Construction, such that:

    a. filters are installed at each return air grille and return or transfer duct inlet opening; and

    b. all filters must be replaced immediately before the Construction Completion Date; and

4. does not permit smoking within 7.6 m of the Building Structure site during Construction.

1-1.7 REFERENCE DOCUMENTS

1-1.7.1 Application of the Preliminary Reference Design

A. Any use by Project Co of any or all aspects of the Preliminary Reference Design in performing the Project Work shall be entirely at Project Co's risk.

1-1.7.2 Codes and Standards

A. Unless expressly stated otherwise, each reference in this Schedule 5 *[D&C Performance Requirements]* to a code, standard, specification, published data, practice or guideline of a standards organization shall be deemed to mean the latest version of that code, standard, specification, data, practice or guideline as of the Technical Submission Date.

B. Without limiting any obligations of Project Co in this Agreement, Project Co shall perform the Design and Construction in compliance with all applicable codes, standards, specifications, published data, practices and guidelines, specified in this Agreement or otherwise required by Good Industry Practice, including:

1. National Building Code – Alberta Edition (NBCAE);
2. Canadian Electrical Code;
3. TAC Geometric Design Guide;
4. CSA S6 Canadian Highway Bridge Design Code (S6);
5. City of Edmonton Procedures for On-Street Construction Safety;
6. Alberta Occupational Health and Safety Code;
7. City of Edmonton Community Standards Bylaw 14600;
8. Edmonton Urban Traffic Noise Policy (C506A);
9. Alberta Safety Codes Council Barrier-Free Design Guide;
10. City of Edmonton Access Design Guide;
11. CSA B651 Accessibility Design for the Built Environment*;*
12. Alberta Electric Utilities Act;
13. EPCOR Customer Connection Guide; and
14. Technical Guideline for the Interconnection of Distributed Energy Resources to EPCOR Distribution and Transmission Inc.'s Distribution System.

C. In the case of any conflict, ambiguity or inconsistency between or among any codes, standards, specifications, published data practices and guidelines, specified in this Agreement or otherwise required for compliance with Good Industry Practice, unless specifically stated otherwise, the provisions establishing the higher quality, manner or method of performing the Design and Construction, using the more stringent standards, shall prevail, with the intent that the provisions which produce the highest level of safety, reliability, durability, performance, quality and service shall govern.

SECTION 1-2 GENERAL DESIGN REQUIREMENTS

1-2.1 GENERAL DESIGN PARAMETERS

1-2.1.1 Design Features

A. The Infrastructure shall incorporate the following design features:

1. Accessibility: All routinely serviced subsystems and components shall be readily accessible for service and inspection. Accessibility of components shall be proportional to frequency of maintenance and repair. No active electrical or mechanical components that can foreseeably require maintenance shall be structurally embedded to preclude convenient access for repair or replacement. Project Co shall ensure that any maintenance actions required on equipment enclosures / boxes (with doors open) on the wayside do not encroach the Track Clearance Envelope or encroach the road carriage way.

2. Modular Design: Modular design principles shall be employed to the greatest extent practicable. Components shall be packaged together in replaceable subassemblies according to the logical function that they perform. Components or subassemblies requiring occasional removal shall preferably be plug-in units.

3. Interchangeability: Assemblies or components that are functionally interchangeable shall be physically interchangeable. Assemblies or components that are not functionally interchangeable shall not be physically interchangeable.

4. Adjustments: The need for adjustments shall be avoided where possible. Where adjustment points cannot be avoided, they shall be readily accessible, adequately identified, and self-locking to prevent inadvertent adjustment or drift.

5. Special Tools: Avoid Equipment which will require special tools for maintenance and repair. If special tools are unavoidable, then Project Co shall define the requirement for the special tools and Project Co and the City will collaborate to determine the quantity of such special tools required. Project Co shall supply such special tools at no cost to the City.

6. Panels and Openings: Panels and openings shall be of sufficient quantity, size, and placement to permit ready access from normal work areas and positions. Adjustment controls and fittings shall be directly accessible through panels and openings. Self-retaining fasteners shall be used wherever possible. Special access opening tools shall not be used unless considered necessary to prevent vandalism.

7. Cable Connections: Cable connectors shall be spaced far enough apart so that they can be grasped firmly for connecting and disconnecting. Connectors shall be properly labeled and keyed so that they cannot be interchanged or improperly installed. Signal and power pins shall not be adjacent.

8. Lifting Assists: Provide handles, lifting lugs, or functional equivalents on components of 18 kg (40 lbs.) or more.

9. Visual Inspection: Where visual inspection of Equipment is required, ensure that this can be undertaken without removal of permanent or fixed elements.

10. Test Points: Built-in test points shall be provided and marked. Major components having test panels or test points shall be located for easy accessibility and shall permit external monitoring of critical functions. Test points shall be protected against environmental damage and human error.

11. Fault Isolation: Failure indicators shall be provided and identified. Systematic fault isolation procedures shall be developed and included in the maintenance manuals.

12. Labeling: All test points, fault indicators, modules, wire junctions, pipes, tubes, wires, etc., shall be identified by name plates, color coding, number coding, or other means to assist maintenance personnel. All ROMs, PROMs, and EPROMs shall be labeled with the version and date of stored software.

13. Hardware: Standard, commercially available industrial components and hardware shall be used wherever possible; and

14. Vandalism: Vandal and damage resistant materials shall be used whenever possible.

1-2.1.2 Operational Design Parameters

A. The Infrastructure shall be designed to meet the following in accordance with Appendix 5-1D [*Operability and Maintainability Parameters*]:

1. minimum peak hour five-minute (5) Headway with right-hand or left-hand running;

2. minimum single tracking headway of fifteen (15) minutes between interlockings;

3. maximum two-car, coupled Train length of 90m;

4. minimum Passenger capacity of 6,500 Passengers per hour per direction (PPHPD) at AW2 loading (the "***Design Capacity***");

5. scheduled one-way travel time between Lewis Farms Stop and 102 Street Stop, in either direction for all LRVs, shall not exceed 00:43:05 minutes. This shall be based upon:

    a. the performance characteristics of the Stage 1 LRVs;

    b. each Train dwelling for a minimum 20 seconds at each Stop or Station before departing again in accordance with the forecast Dwell Times included Table 1-2.1.2. Dwell Times shall include stochastic variation of +/- 10 seconds;

    c. each Train stopping at Partial Priority intersections based on the provided Stop Probabilities. For trains that are stopping, the delays due to deceleration and acceleration shall also be included in the travel time;

    d. each train passing through each Full Priority intersection at the Maximum Operating Speed without stopping; and

    e. the maximum speed of a Train when any part of the Train is adjacent to a Platform shall be 40 km/h except that;

    f. when approaching a Stop or Station Platform, the speed of the Train shall be reduced to 15 km/h by the time the Train reaches the midpoint of the Platform;

    g. average runtimes plus two standard deviations of a minimum of 195 trips in both directions in accordance with the OpenTrack model required in Section 6-4.5 [*Transit Signal Priority*] of this Schedule; and

    h. Driver performance factor ranging from 85% to 95%, with an average of 90%, on acceleration, braking, and maximum allowable speed parameters at a minimum;

6. facilitate the safe maintenance, repair and cleaning by the Operator;

7. permit maintenance, to the extent possible, on a single track at a time with more significant maintenance requiring access to both tracks undertaken outside of revenue hours;

8. permit maintenance of one TPSS at a time while still maintaining operational service;

9. minimize maintenance and prevent vandalism and graffiti;

10. allow a minimum of 15-minute headways to be maintained, in both directions, at any point on the system, when operating on a single track; and

11. permit short turn back operations, in both directions, from both Jasper Place Stop and WEM Station.

Table 1-2.1.2 Forecast Dwell Times

Stop/Station	AM (seconds)		PM (seconds)	
	Eastbound	Westbound	Eastbound	Westbound
Lewis Farms Stop	-	-	-	-
Aldergrove/Belmead Stop	35	20	20	20
West Edmonton Mall Station	45	20	35	35
Misericordia Station	20	20	20	20
Meadowlark Stop	35	20	20	20
Glenwood/Sherwood Stop	20	20	20	20
Jasper Place Stop	45	20	20	45
Stony Plain Road/149 Street Stop	20	20	20	20
Grovenor/142 Street Stop	20	20	20	20
Glenora Stop	20	20	20	20
124 Street Stop	35	20	20	20
Brewery/120 Street Stop	35	20	20	20
The Yards/116 Street Stop	35	20	20	20
MacEwan Arts/112 Street Stop	20	20	20	20
NorQuest Stop	45	45	45	45
Alex Decoteau Stop	45	45	35	35

1-2.1.3 Operational Principles

A. The Infrastructure shall be designed to be principally operated on a right-hand running system, on a Line-of-Sight basis and in accordance with the principles of Operation set out in Appendix 5-1D *[Operability and Maintainability Parameters*] of this Schedule.

B. A TRPS shall be used to control the interface of the LRT and road traffic at Grade Crossings.

C. Pedestrians, bicycles and vehicular traffic, other than emergency vehicles, shall be discouraged from entering the Trackway, except at designated crossing points, by way of the least intrusive means available to mitigate Hazards identified during the Safety and Security Certification Program. For greater certainty, options for mitigating identified Hazards (in order of less intrusive to more intrusive) include:

1. passive signs, markings, and tactile paving;

2. striped channelization;

3. Traffic Signals, active signs and pedestrian crossing signals;

4. removal of sightline obstructions, e.g. trees;

5. reduction of Train speeds;

6. barrier channelization; and

7. other pedestrian protection devices, e.g. swing gates.

D. Elements adjacent to the Tracks, including parking, cabinets, poles, trees, plantings and other street furniture or features, shall be placed to avoid obstruction of the LRV driver's sight lines.

E. Where the probability of an On-Track Obstruction is low, as demonstrated by the Safety and Security Certification Program, the Line-of-Sight operation may be based on the use of the Train's Hazard Brake instead of the Train's Service Brake.

F. Project Co shall design and construct the Infrastructure to account for incident management strategies for the potential incidents outlined in Appendix 5-1D *[Operability and Maintainability Parameters]*.

1-2.1.4 Operations and Maintenance Compliance

A. Project Co shall:

1. within 120 days of the Effective Date, submit an O&M requirements definition report ("**O&M Requirements Definition Report**") which shall:

    a. identify all operational parameters which the Design and Construction of the Project shall meet;

    b. identify all Infrastructure which will be required to interface with the future ICS; and

    c. derive all design parameters necessary to ensure that the Operator can perform its services in accordance with Appendix 5-1D *[Operability and Maintainability Parameters]*;

2. coordinate and oversee all activities required by Section 10 *[Training and Operating and Maintenance Manuals]* of Schedule 4 *[Design and Construction Protocols]*, including:

    a. the development of the Training Program, including the training schedule;

    b. the production of the Training Plan and all training documentation, including an "Instructor's Guide" and a "Student Manual"; and

    c. the development of the Operating and Maintenance Manual;

3. identify any changes required to the Valley Line LRT Stage 1 Standard Operating Procedures or Operating Rule Book;

4. provide a sightline study for the Valley Line LRT Stage 2 ("**Valley Line LRT Stage 2 Sightline Study**") at Second Interim Design and Final Design Submissions based on the Sighting Distance along the Infrastructure in accordance with Section 6-1.3 [*Train Control System (TCS)]* of this Schedule, that demonstrates that adequate sight lines exist between persons and trains on the basis of:

    a. the sightline between persons and trains provides a minimum of 10 seconds of sighting time or greater time where necessary to allow for a person to travel between points of

safety at a rate of 1 m/s employing the methodology outlined in Figure 13 of TCRP Report 175 "*Guidebook on Pedestrian Crossings of Public Transit Rail Services*"; and

b. the sightline between trains and persons is adequate to allow the train to be brought to a stop at a full service braking rate short of the crossing when it is determined to be obstructed.

5. have input to the Track Optimization Study as defined in Section 3-1.1.2 [*Track Alignment*] of this Schedule and review the Infrastructure to ensure the safe and efficient operation of the Infrastructure for the Stage 1 LRV. This review shall also include:

    a. consideration of the operation without fault or failure under the dynamic pantograph characteristics created by the Stage 1 LRV; and

    b. conform to the SUI requirements as described in Part 2 *[Sustainable Urban Integration]* of this Schedule;

6. lead all operational modeling requirements in accordance with Section 6-4.5 [*Transit Signal Priority*] of this Schedule;

7. oversee the development of the RAM Program in accordance with Section 5.6 *[Reliability, Availability, Maintainability (RAM) Program]* of Schedule 4 *[Design and Construction Protocols]*;

8. review and endorse all Submittals, prior to their submission, to confirm they meet the operational design requirements in Section 1-2.1.2 *[Operational Design Parameters]* of this Schedule;

9. submit as part of the Commissioning Plan defined in Section 9 *[Commissioning]* of Schedule 4 *[Design and Construction Protocols]*, a description of Project Co's system of records of training; and

10. develop the Performance Demonstration Monitoring Plan and its required reports as outlined in Schedule 7 *[Performance Demonstration Requirements]*.

B. Submit an operations plan (the "**Operations Plan**") based on Appendix 5-1D *[Operability and Maintainability Parameters]*, and the requirements in Section 1-2.1.3 of this Schedule. The Operations Plan shall:

1. be submitted as a draft at second Interim Design and Final Design stages with a final version submitted 60 days prior to Construction Completion;

2. include a summary of changes to the Valley Line LRT Stage 1 Operating Rule Book and Standard Operating Procedures; and

3. a description of the intended operation, including:

    a. Travel Times;

    b. minimum peak hour Headway in each direction;

    c. details of the Maximum Operating Speeds for each section of Track;

    d. an operational analysis and OpenTrack model demonstrating that items (a) and (b) are in compliance with the Project Requirements, and as a minimum considering and demonstrating the effects of:

        i. LRV acceleration and deceleration characteristics under AW2 loading;

        ii. Trackway grades and curvatures;

iii. Line-of-Sight operations taking into account Sighting Distance and Driver Reaction Times; and

iv. single track operations at any point on the Infrastructure while maintaining a 15-minute Headway in each direction;

e. a strategy for how the Operator will be able to accommodate third-party Maintenance requirements:

i. accommodate reasonable third-party requests to permit the Maintenance of buildings and infrastructure and Other Works which are adjacent to or above the Infrastructure;

ii. include occupational health and safety requirements of as they relate to the System; and

iii. isolate OCS outside of the Operating Hours to accommodate access when requested;

f. a strategy to minimize disruption to Passenger Service to accommodate works which encroach on the Infrastructure.

1-2.1.5 Noise Control

A. Not used.

B. Design and construct the Infrastructure to ensure:

1. total noise generated by LRV movements and traffic from all Roadways, based on the 2027 traffic volumes, shall not exceed 65 dBA $L_{eq,24}$ in the centre of private back yards of residences abutting the LRT Corridor at an elevation of 1.5m;

2. total noise generated by static sources such as HVAC systems, generators, and transformers, shall meet the requirements set out in Part III – Noise Control in the City of Edmonton Community Standards Bylaw 14600;

3. total noise from the System and its Operation shall not, at any time, exceed any of the following:

a. the higher of the ambient traffic noise levels or 25 dBA, measured in maximum sound pressure levels ('Slow' time weighting), $L_{max,S}$ on the stage or in the auditorium inside any concert hall or theatre; and

b. 80 dBA $L_{max,S}$ peak pass-by noise level when measured at 10 m from centerline of Track at an elevation of 1.5 m; and

4. total noise from any Utility Complex, permanent generators and transformers shall not, at any time, exceed 45 dBA $L_{eq,\ 1hr,}$ when measured 5 m from the point where the sound enters a public area.

C. Implement measures to minimize noise resulting from LRV wheel to rail interface including wheel squeal, corrugation and wheel interaction with Special Trackwork.

D. Within 365 days of the Effective Date, or at an alternate date accepted by the City, submit a noise impact assessment report ("**Noise Impact Assessment Report**") which must include:

1. a summary of relevant noise criteria;

2. a detailed description of the methods used to predict Project noise impacts at noise sensitive receptors, including calculation methods, assumptions used, receptor locations, and noise source input descriptions. Representative receptors should be selected which are predicted to be exposed to the worst-case effects of noise from the project, and receptor selection shall consider:

    a. setback from alignment;

    b. pre-construction ambient noise levels;

    c. differences in grade elevation between alignment and receptor;

    d. traffic volumes and speeds;

    e. LRV speed;

    f. proximity to Special Trackwork (e.g. crossovers or potential wheel squeal areas); and

    g. shielding (of lack thereof) from barriers, buildings, or ground;

3. results and conclusions of the assessment; and

4. any noise mitigation measures required in accordance with the results of the assessment in order to meet the levels specified in Section 1-2.1.5 [*Noise Control*] of this Schedule.

1-2.1.6 Noise Attenuation Walls

A. Project Co shall provide a noise attenuation fence along the south side of 87 Avenue, between 187 Street and 182 Street, as shown on Figures 5-1A-05 to 5-1A-06 of Appendix 5-1A *[Project Description Drawings]* of this Schedule, adhering to the following:

1. the requirements of detail #LA405 of the Valley Line West LRT Landscape Design and Construction Standards, except that:

    a. it shall be a minimum of 2200 mm in height; and

    b. the 38x140 bottom rails shall be wood-plastic composite in a colour reasonably matching the stain of the wood fence material and shall be buried minimum 100mm below finished grade;

2. it shall be constructed within 300mm of the property line, on City property; and

3. Project Co shall confirm that the fence will not impact the performance of the Major Drainage system in its vicinity for events up to and including the 1:100 year design event, and if impacted, revisions to the Major Drainage system shall be designed and constructed to ensure it will perform as described in the City of Edmonton Design and Construction Standards, Volume 3: Drainage.

B. Project Co shall preserve the existing noise attenuation fence along the south side of 87 Avenue, between 175 Street and 172 Street, as shown on Figures 5-1A-09 to 5-1A-10 of Appendix 5-1A *[Project Description Drawings]* of this Schedule.

C. Where there is an existing Property Fence nominally perpendicular to the noise attenuation fence required in accordance with Section 1-2.1.6A *[Noise Attenuation Walls]* of this Schedule, extend the existing Property Fence with matching construction so as to tie into the new noise attenuation fence.

D. Notwithstanding Section 1-2.1.6A and B *[Noise Attenuation Walls]* of this Schedule, where the Noise Control Sub-Plan demonstrates that in order to comply with Section 1-2.1.5A *[Noise Control]* of this Schedule along the LRT Corridor, a Noise Attenuation Wall or fence constructed at the edge of the LRT Corridor is the only reasonable mitigation available, Project Co is not required to design or

construct such Noise Attenuation Walls or fences, but shall allocate and reserve 500 mm of horizontal space on City property adjacent to the property line to allow for the future construction of those Noise Attenuation Walls or fences by Others.

1-2.1.7 Vibration Control

A. Not used.

B. Design and construct the Infrastructure to ensure vibration generated by operation of the Infrastructure, including LRV movements and all static sources such as HVAC systems, generators and transformers, as measured on the floor of any occupied space, does not exceed the limits set-out in Table 1-2.1.7 *[Vibration Limits]*.

Table 1-2.1.7 Vibration Limits

Building Type	**Vibration Limit** (mm/s RMS: one-second period)
Concert hall	0.045
Theatre	0.10
Church	0.14
School (including licensed daycare, elementary school, junior high school, high school, college, university)	0.10
Healthcare facility (including clinic, hospital, laboratory but excluding medical imaging facility)	
Residential building (including house, apartment, shelter accommodation)	
Medical imaging facility	0.0125
Office or commercial building	0.40
Any other building	0.80

C. Within 365 days of the Effective Date, or at an alternate date accepted by the City, submit a vibration impact assessment report ("**Vibration Impact Assessment Report**") which must include:

1. a summary of relevant vibration criteria;

2. a detailed description of the methods used to predict Project vibration impacts at vibration sensitive receptors, including calculation methods, assumptions used, receptor locations, and vibration source inputs. Representative receptors should be selected to be exposed to the worst-case effects of vibration from the project and receptor selection shall consider:

    a. setback from alignment;

    b. LRV speed;

    c. proximity to Special Trackwork (e.g. crossovers);

    d. vibration sensitivities specific to a certain receptor location (e.g. vibration sensitive equipment); and

    e. soil vibration propagation conditions;

3. a description of soil vibration propagation (transfer mobility) testing including methods, testing locations, and results;

4. the results and conclusions of the vibration assessment; and

5. any vibration mitigation measures required in accordance with the results of the assessment in order to meet the levels specified in Section 1-2.1.7 [*Vibration Control*] of this Schedule.

1-2.1.8 LRV Accommodation

A. The Infrastructure shall be designed to accommodate:

1. Stage 1 LRVs; and

2. an LRV with the following characteristics:

a. a total body height of 4.0 m; and

b. Track Clearance Envelope widths on curves in accordance with Table 1-2.1.8 *[Track Clearance Envelope Widths]*.

i. Track Clearance Envelope shall not exceed the Track Clearance Envelope widths on curves during periodic wind gusts of 120 km/h.

Table 1-2.1.8 Track Clearance Envelope Widths

Curve Radius (m)	In-Swing (mm)	Out-Swing (mm)
25	1995	1955
30	1925	1865
35	1878	1840
40	1830	1815
50	1785	1790
60	1755	1777
70	1725	1765
90	1700	1750
100	1695	1745
135	1690	1732
200	1685	1720
300	1685	1710
500	1690	1705
1000	1690	1700
Tangent	1675	1675

B. Where Section 3.8.1.4 [*Vehicle Running Clearance*] of TCRP Report 155 requires a minimum running clearance of 150 mm, this may be reduced to 100 mm when considering the Track Clearance Envelope widths identified in Table 1-2.1.8 [*Track Clearance Envelope Widths]* of this Schedule.

C. The Platform to LRV interface shall be excluded from complying with the dimensions in Table 1-2.1.8 *[Track Clearance Envelope Widths].*

D. All areas of Secondary Track constructed with Ballasted Track shall have the following minimum Track centres:

1. 4.5 m where centre-mounted OCS poles are installed; and

2. 4.0 m where centre-mounted OCS poles are not installed.

1-2.1.9 Sustainable Urban Integration

A. Without limiting the requirements of Part 2 [*Sustainable Urban Integration*] of this Schedule, the Design and Construction of the Infrastructure shall be consistent with the themes, colours, imagery and aesthetics as illustrated in the Valley Line West LRT Design Guide.

1-2.1.10 Edmonton Climatic Requirements

A. Ensure that the Infrastructure, including all systems and subsystems, are designed for, and will provide their full functionality during operation in all environmental conditions present in the City of Edmonton and along the LRT Corridor including:

1. temperatures from +40 °C to -40 °C;

2. humidity from 0% to 100%;

3. sustained winds of up to 70 km/h with periodic gusting to 120 km/h;

4. rainfall of up to 52 mm in a 24-hour period;

5. snowfall of up to 24 cm in a 24-hour period;

6. altitude 671 m above sea level;

7. wet snow in the early or late winter transitioning to a winter with predominantly dry powder;

8. dry powdered snow, which will pack into filtration systems and get sucked into, and packed in, voids in the undercar;

9. freezing rain as the weather transitions from positive temperatures to negative and back;

10. flash flooding where the volume of rain exceeds the drainage systems;

11. hail of up to golf-ball sized;

12. snowstorms starting near the end of summer; and

13. accumulations of sand, salt, dust, trash, and leaves.

1-2.2 PROPERTY FENCES

1-2.2.1 Fences Temporarily Removed for Construction

A. Where any existing Property Fence is removed:

1. immediately provide temporary fencing to secure the property during construction;

2. complete the construction of the replacement Property Fence within 45 days of the initial removal of the existing Property Fence; and

3. construct the replacement Property Fence in accordance with Drawing #LA405 of the Valley Line West LRT Project Landscape Design and Construction Standards, or reinstate the existing Property Fence if requested by the private property owner through negotiations with the City.

1-2.2.2 Temporary Fences

A. Where temporary fencing is provided in accordance with Section 1-2.2 *[Property Fences]* of this Schedule, it shall:

1. provide an equivalent level of security at all times for the affected property as was provided with the Property Fence to be removed; and

2. comply with the requirements of Section 1-8.3 *[Temporary Barriers and Enclosures]* of this Schedule.

B. Provide temporary fencing around vacant lots adjacent to the construction.

1-2.2.3 Landscape Fences

A. Landscape Fences shall be provided as shown on Figures 5-1A-01 to 5-1A-44 of Appendix 5-1A [*Project Description Drawings*] and as required by Sections 2-14.6 [*West Edmonton Character Zone Landscape Requirements*] through 2-14.12 [*Utility Complex Site Landscaping*] of this Schedule, and are to be constructed wholly within private property.

B. Landscape Fences and corresponding gates, as required, shall conform to Drawings #LA405, #LA405A, #L405B, and #LA406, of the Valley Line West LRT Landscape Design and Construction Standards.

C. Where Landscape Fences are required:

1. engage in consultations with property owners to determine the best location and arrangement for Landscape Fences:

    a. Project Co shall submit a standard agreement for the construction of Landscape Fences and shall submit signed copies of the agreement to the property owner and the City;

    b. property owners may refuse to have a Landscape Fence provided, in which case proof of refusal shall be submitted to the City;

    c. where property owners refuse to have a fence provided, a Landscape Fence may still be required to be built on Public ROW, on a case by case basis; and

    d. where a property line has not been determined, the Landscape Fence shall be constructed at 0.6 m from the Back of Walk;

2. remove existing fences, including all piles and other foundations;

3. provide gates in locations and arrangements similar to existing gates; and

4. gates shall not open on to sidewalks or SUPs.

1-2.3 ELECTROMAGNETIC COMPATIBILITY

1-2.3.1 Electromagnetic Compatibility Requirements

A. The EMC Program shall ensure compliance with all the requirements of this Section 1-2.3 *[Electromagnetic Compatibility]*.

1-2.3.2 General

A. Within 180 days after the Effective Date, prepare and submit to the City a program to ensure that all systems, structures, and equipment installed and/or operated as a result of the Valley Line LRT Stage 2 do not cause electromagnetic interference (EMI) which may affect other systems within the electromagnetic environment in which they operate and are not affected by the electromagnetic environment in which they operate (the "**EMC Program**"). As part of the EMC Program:

1. comply with Schedule 2 *[Submittal Review Procedure]*;

2. establish and submit an EMC Control Plan (EMCP) (the "**EMC Control Plan**");

3. establish and submit EMC Design Criteria and EMC mitigations for contractor and equipment supplier specifications (the "**EMC Design Criteria and Mitigations**");

4. ensure that the Valley Line LRT Stage 2 Systems and equipment are electromagnetically compatible within themselves; with the Valley Line LRT Stage 1 LRVs, signalling, Traction Power, and communications systems; with other City electronic equipment; and with equipment owned by neighbours of the LRT Corridor;

5. ensure that EMI cannot cause an unsafe condition on the Valley Line LRT Stage 2 line;

6. provide a procedure and perform and submit an EMI/RFI survey test report pre-existing EMI and RFI conditions (the "**EMI/RFI Survey Test Report**");

7. perform and submit an EMI/RFI Study (the "**EMI/RFI Study**") of:

    a. EMI/RFI generated by Stage 1 LRVs, and Valley Line LRT Stage 2 equipment;

    b. the potential of Stage 1 LRVs to interfere with Valley Line LRT Stage 2 track circuits and other train control equipment; and

    c. planned mitigations;

8. establish and submit EMC Requirements (the "**EMC Requirements**") for procurement of Valley Line LRT Stage 2 systems and equipment. Use the EMC Requirements to monitor and evaluate supplier EMC activities and deliverables:

    a. the EMC Requirements shall require Supplier EMC Plans for each Valley Line LRT Stage 2 system which is a potential source or victim of EMI; and

    b. submit the Supplier EMC Plans;

9. provide the EMC Design Analysis;

10. provide the EMI Safety Analysis;

11. establish an EMC Test Program;

12. submit the scope, content, procedures and reports;

    a. perform and submit equipment supplier EMI/RFI test procedures and test reports (the "**EMI/RFI Test Procedures and Test Reports**") for all Valley Line LRT Stage 2 system elements.

13. provide manuals and training for all procedures and inspections necessary to maintain EMC for the Valley Line LRT Stage 2; and

14. work with the City and its suppliers to resolve any EMC problems discovered during execution of this Project Agreement.

B. The EMC Control Plan shall:

1. establish Valley Line LRT Stage 2 EMC Program objectives, scope, requirements, participants, activities, and deliverables;

2. comply with applicable regulatory requirements and design criteria;

3. describe the processes and procedures required to satisfy the requirements of Section 1-2.3 *[Electromagnetic Compatibility]* of this Schedule;

4. include details of the organization, roles and responsibilities for all EMC activities;

5. describe the management and coordination of EMC control and the protective provisions to be employed to ensure that the Infrastructure is electromagnetically compatible with its environment;

6. identify the industry standard(s) that will be applied to ensure the EMC of the Infrastructure, including corresponding interference emission and susceptibility levels along with the rationale for their selection;

7. describe the techniques to be employed during design to minimize interference coupling;

8. describe the method(s) to be employed to identify and record all relevant EMI contributors and EMI receivers and identify the applicable emission and susceptibility targets for each;

9. describe the process to be employed for categorization of EMC risks, including operational, commercial and safety-related risks;

10. describe the process to be employed to mitigate identified EMC risks throughout all phases of Design and Construction, operation and Maintenance; and

11. summarize the EMC related testing and test methods that will be performed to verify and validate the EMC of the Infrastructure.

C. The EMC Design Criteria shall:

1. determine and include design criteria, including:

a. equipment locations and EMC considerations;

b. cable;

c. earthing, grounding, and bonding;

d. equipment design;

e. facility power;

f. Traction Power;

g. motors and controllers;

h. equipment rooms and surrounding area;

i. emission and immunity limits;

j. dependable operation when exposed to mobile radios and cellular telephones; and

k. human exposure; and

2. require all systems and equipment to conform with the applicable requirements of EN 50121-1, EN 50121-2, EN 50121-3-1, EN 50121-3-2, EN 50121-4, and EN 50121-5; and

3. apply human exposure limits from IEEE Std C95.6 and IEEE Std C95.1.

D. The EMI/RFI Survey Test Procedure and Test Report shall:

1. determine the pre-existing EMI/RFI characteristics for potential sensitive neighbour facilities, such as:

a. universities;

b. hospitals;

c. diagnostic imaging clinics;

d. research facilities with sensitive equipment; and

e. any facility with EMI sensitive equipment;

2. determine and measure the pre-existing EMI/RFI characteristics for potential EMI/RFI emitters that have the potential to interfere with sensitive train equipment;

3. measure EMI/RFI generated by structures and equipment (e.g. TPSS, LRV, and Stations) in project procurement and EMC scope;

4. establish possible steps of mitigation for potential sensitive neighbor facilities and potential emitter facilities;

5. if not otherwise available, determine the emission characteristics of the Stage 1 LRVs; and

6. include the methods used for testing, measurement locations, test results, survey findings and preliminary recommendations.

E. The EMI/RFI Study shall:

1. assess and measure EMI/RFI generated by Stage 1 LRVs and Valley Line LRT Stage 2 equipment;

2. establish EMI levels under which the Valley Line LRT Stage 2 equipment must operate safely and reliably;

3. evaluate the potential of Stage 1 LRVs to interfere with Valley Line LRT Stage 2 track circuits and other train control and communications equipment and identify planned mitigations;

4. address possible safety and reliability issues; and

5. include the methods used for testing, test results, and provide input for procurement specifications.

F. The EMC Requirements for procurement specifications of systems and equipment shall:

1. establish EMC requirements and EMC design provisions for inclusion in procurement specifications for supplies;

2. ensure the development, delivery and implementation of a Supplier EMC Plan compatible with Valley Line LRT Stage 2; and

3. ensure each supplier performs required EMC testing, analysis, and reporting.

G. Each Supplier EMC Plan shall:

1. comply with the EMCP and all Valley Line LRT Stage 2 requirements;

2. define Supplier EMC Program scope, tasks, techniques, deliverables, and milestones;

3. provide a Supplier EMC Program schedule, which identifies specific tasks with start and completion dates, and explains how these tasks are coordinated with Edmonton Valley Line LRT project milestones;

4. provide organization of supplier staff responsible for the Supplier EMC Program;

5. list each supplier EMC deliverable, the participants, and the contents of the deliverable;

6. present the supplier's methodology to assure compliance with EMC requirements; and

7. establish an EMC Test Program to verify compliance with EMC.

H. The EMC Design Analysis shall:

1. establish the requirements of emission analysis and immunity analysis;

2. require that each EMC-related equipment supplier ensure that supplied equipment conforms with all applicable EMC design requirements and criteria; and

3. require that each EMC-related equipment supplier must provide an EMC Design Analysis report, consisting of emission analysis and immunity analysis.

I. The EMI Safety Analysis shall:

1. be integrated with the Safety and Security Certification Program as defined in Schedule 4 [*Design and Construction Protocols*];

2. require each EMC-related equipment supplier to provide an EMI Safety Analysis or necessary analysis and reporting for its equipment, compatible with the Safety and Security Certification Program as defined in Schedule 4 [*Design and Construction Protocols*].

J. The EMC Test Program shall:

1. demonstrate and verify EMC for all Valley Line LRT Stage 2 System elements; and

2. provide an analysis and/or test results that demonstrate compatibility of the Stage 1 LRVs with the Valley Line LRT Stage 2 Track and wayside mounted equipment.

1-2.3.3 Compliance with the EMC Program

A. Throughout the Term implement and comply and ensure compliance in all aspects of the Valley Line LRT Stage 2 with the EMC Program, and any amendments or updates, which have been accepted by the City.

The Infrastructure, including all sub-systems and equipment, shall:

1. be electromagnetically compatible with each other and comply with an industry recognized EMC standard such as;

    a. Department of Defense Interface Standard MIL-STD-464 *Electromagnetic Environmental Effects Requirements for Systems*; or

    b. Electrotechnical Commission IEC 62236 series of standards, *Railway Applications – Electromagnetic Compatibility, Parts 1–5*; and

2. have maximum emissions to the environment adjacent to the Lands that do not exceed the levels set out in International Electrotechnical Commission IEC 62236, *Railway Applications – Electromagnetic Compatibility, Part 2 [Emission of the Whole Railway System to the Outside World]*; and

3. be electromagnetically immune to interference from the environment surrounding the Infrastructure.

1-2.3.4 EMC Project File

A. An EMC Project File shall be maintained and updated throughout the Design and Construction to record the EMC Program activities and include detailed records of:

    1. the systematic review of EMI contributors and EMI receivers including their categorization and any design mitigation;

    2. all EMC inspections, tests and monitoring; and

    3. all identified EMC issues and the mitigation measures implemented through the Design and Construction of the Infrastructure;

B. The EMC Project File shall be available for review by the City upon request and as a minimum submitted to the City:

    1. no less than 28 days prior to the start of Commissioning; and

    2. no less than 28 days prior to the Target Construction Completion Date.

1-2.4 STRAY CURRENT AND CORROSION CONTROL PROGRAM

1-2.4.1 General Requirements

A. Within 180 days after the Effective Date, prepare and submit to the City a program to ensure that all systems, structures, and equipment installed and operated as a result of the Valley Line LRT Stage 2 are designed to minimize the corrosive effect of DC Stray Current from transit operation on transit structures and adjacent structures and Utilities owned by others, (the "**Stray Current Program"**). As part of the Stray Current Program:

    1. comply with Schedule 2 *[Submittal Review Procedure]*;

    2. establish and submit a Stray Current plan (the "**Stray Current Plan**");

    3. establish and submit Stray Current design criteria and Stray Current mitigations for all relevant Valley Line LRT Stage 2 scope (the "**Stray Current Design Criteria and Mitigation Report**");

    4. ensure that the Valley Line LRT Stage 2 Stray Current design provisions are compatible within those of the Valley Line LRT Stage 1;

5. perform and submit a Stray Current survey procedure and test report (the **"Stray Current Survey Procedure and Test Report"**) of pre-existing Stray Current and grounding conditions.

B. The Stray Current Plan shall:

1. describe the processes and procedures required to satisfy the requirements of this Section 1-2.4 [*Stray Current and Corrosion Control Program*];

2. include details of the organization, roles and responsibilities for all Stray Current control and corrosion control activities;

3. describe the management and coordination of Stray Current and corrosion control activities and the protective provisions to be employed to control the effects of Stray Current from the Infrastructure; and

4. identify the specific industry standard(s) and best practices that will be applied to the control of Stray Current including:

    a. the maximum acceptable Stray Current levels;

    b. the analysis supporting the selection of the Stray Current levels; and

    c. design techniques and protective provisions to be used to minimize and mitigate Stray Current;

5. identify all components within and outside of the Lands which are at risk from Stray Current from the Infrastructure, including Utilities, structures, metallic tanks and vessels, grounding installations, signalling and telecommunication installations, adjacent railways and cathodic protection systems, and the means of protection for each;

6. require a Stray Current Study which will identify the residual Stray Current to which each Transportation Structure will be exposed following implementation of all Stray Current mitigation measures and the additional design measures to be taken into account in achieving the required Design Service Life;

7. cover the surveys, testing and test methods that will be used to verify and validate the mitigation provisions; and

8. ensure compliance with all requirements of Section 1-2.4 *[Stray Current and Corrosion Control Program]* of this Schedule.

C. The Stray Current Design Criteria shall:

1. cover:

    a. Stray Current acceptance criteria;

    b. Stray Current evaluation;

    c. Traction Power System;

    d. positive and negative distribution system;

    e. rail-to-earth resistance;

    f. touch potentials;

    g. cross bonds and track insulation;

h. Stray Current leakage path control;

i. earthing systems;

j. at-grade and elevated guideway;

k. Maintenance and Storage Facilities;

l. Utilities and pipelines; and

m. interfaces, expansion, and special design provisions;

2. detail the construction and maintenance and operation approach;

3. require all systems and equipment to conform with the applicable requirements and standards such as, but not limited to:

a. BS EN-50162 - Protection against corrosion by stray current from direct current systems;

b. IEC 62128-2 Railway applications — Fixed installations — Electrical safety, earthing and the return circuit — Part 1: Provisions against the effects of stray currents caused by dc traction systems;

c. BS EN-50122-1 Railway applications - Fixed installations - Electrical safety, 2016 earthing and the return circuit. Part 1: Protective provisions against electric shock;

d. BS EN-50122-2 Railway applications - Fixed installations - Electrical safety, earthing and the return circuit. Part 2: Provisions against the effects of stray currents caused by dc traction systems;

e. ASTM 6165 - Standard practice for determining rail-to-earth resistance;

f. NACE SP0169 - Standard Practice, Control of external corrosion on underground or submerged metallic piping systems;

g. CSA C22.1 - Canadian Electrical Code, Part 1;

h. CSA C22.2 No.41 - Grounding and Bonding Equipment;

i. CSA C22.2 No.4 - Control of electrochemical corrosion of underground metallic structures;

j. TCRP Report 155 - Track design handbook for Light Rail Transit LRT, Second edition; and

k. ASTM C1202 - Standard test method for electrical Indication of concrete's ability to resist chloride ion penetration; and

4. provide Stray Current design plan mitigations equivalent to the Valley Line LRT Stage 1.

D. The Stray Current Survey Procedure and Test Report shall:

1. be performed:

a. no more than 180 days after the Effective Date, and prior to Construction of any element that would influence stray current contributions, establish a baseline of the prevailing Stray Current conditions (the "**Stray Current Baseline Survey**"); and

b. during Commissioning and prior to, operate the Infrastructure and measure the net contribution of Stray Current by the Infrastructure to the original baseline condition to confirm compliance with the Stray Current Program (the "**Stray Current Operational Survey**");

2. determine and measure the pre-existing Stray Current and grounding characteristics for potential sensitive interfaces, such as:

    a. Traction Power System;

    b. positive and negative distribution system;

    c. rail-to-earth resistance;

    d. touch potentials;

    e. cross bonds and Track insulation;

    f. Stray Current leakage path control;

    g. earthing systems;

    h. at-grade and elevated guideway;

    i. Maintenance and Storage Facilities; and

    j. Utilities and pipelines;

3. determine and measure the pre-existing Stray Current characteristics that have the potential to interfere with sensitive train equipment;

4. measure Stray Current generated by structures and equipment (e.g. TPSS and Stations) in project procurement and Stray Current control scope;

5. establish possible steps of mitigation for potential sensitive neighbor facilities and potential emitter facilities; and

6. include the methods used for testing, measurement locations, test results, survey findings and preliminary recommendations.

E. The Stray Current Study shall:

1. establish Stray Current levels under which the Valley Line LRT Stage 2 equipment must operate safely and reliably;

2. address possible safety and reliability issues; and

3. include the methods used for testing, test results, and provide input for procurement specifications.

4. be integrated with the Safety and Security Certification Program as defined in Schedule 4 [*Design and Construction Protocols*].

F. Establish a Stray Current Test Program that shall:

1. demonstrate and verify Stray Current control mitigation for all Valley Line LRT Stage 2 system elements and include the delivery of equipment supplier Stray Current Control Test Procedures and Test Reports;

2. include a pre-construction baseline Stray Current survey. Pre-construction stray current surveys and soil resistance measurements shall be performed at all future Infrastructure locations:

    a. pre-construction survey shall identify additional test locations along the Valley Line LRT Stage 2 alignment, including any adjacent and parallel metallic structure, Utilities, utility power-lines, EPCOR sub-stations, pipelines, tanks, and Building Structures;

3. include test standards, test methods, measurement levels and test equipment requirements will be established consistent with this Schedule; and

4. include a Stray Current pre-energization survey performed at all future Infrastructure locations.

1-2.5 NOT USED

1-2.6 NOT USED

1-2.7 GROUNDING AND BONDING

A. Implement an Infrastructure wide grounding and bonding design for protective grounding and bonding, incorporating grounding and lightning protection that addresses the requirements of all disciplines.

1. Prepare and submit a grounding and bonding plan that describes the protective grounding and bonding design across the Infrastructure with each of the second Interim Design and Final Design submission for the OCS Line Wide as described in Appendix 4B [*Project Specific Submission Requirements*], the ("**Grounding and Bonding Plan**").

B. The design of the grounding and bonding system shall be coordinated with:

1. the EMC activities described in Section 1-2.3 *[Electromagnetic Compatibility]* of this Schedule;

2. the Stray Current activities described in Section 1-2.4 *[Stray Current and Corrosion Control Program]* of this Schedule; and

3. the system and safety assurance activities described in Section 5 *[System and Safety Assurance]* of Schedule 4 *[Design and Construction Protocols].*

C. The following industry standards shall be used to guide the design and to determine maximum acceptable touch and step potentials:

1. IEC 62128-1 *Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 1: Protective provisions against electric shock*;

2. ANSI/IEEE Std. 142 *Recommended Practice for Grounding of Industry and Commercial Power Systems*;

3. IEEE Std. 80 *Guide for Safety in AC Substation Grounding*;

4. IEEE Std. 81 *Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials*;

5. CAN/CSA C22.1 *Canadian Electrical Code, Part I*; and

6. CSA C22.2 No. 41 *Grounding and Bonding Equipment*.

1-2.8 LIGHTNING PROTECTION

A. Perform a lightning protection study in accordance with CAN/CSA-B72 *Installation Code for Lightning Protection Systems*.

B. Implement lightning protection measures for all Structures determined to be at-risk in accordance with the lightning protection study.

C. All exposed connections and components of the lightning protection system shall be accessible for inspection and Maintenance.

1-2.9 DESIGN SERVICE LIFE

A. Table 1-2.9-1 *[Design Service Life]* provides the minimum Design Service Life requirements for components of the Infrastructure.

B. Demonstrate that, for elements for which Table 1-2.9-1 [*Design Service Life*] requires a Design Service Life of greater than 75 years, such Design Service Life can be achieved through modelling of performance-based element type, concrete properties, corrosion protection systems and exposures.

C. Provide architectural materials and components for all Building Structures with an Expected Service Life in accordance with Section 5-1.3.1 *[Durability]* of this Schedule.

D. Provide mechanical and electrical materials and components for all Building Structures with a Design Service Life in accordance with Section 5-1.3.1 *[Durability]* of this Schedule.

Table 1-2.9-1 Design Service Life

Infrastructure – Major Elements	Minimum Design Service Life (Years)
Transportation Structures	
Bridges and Elevated Guideways	100
OCS pole foundations	75
Retaining walls > 1.2m high of retained earth	100
Slope stabilization structures	100
MacKinnon Ravine Pedestrian Bridge	30
Trackway (excluding Track and pile supported Trackway)	50
Pile supported Trackway (excluding Track)	100
Other Structures	
Retaining walls < 1.2m high of retained earth, including foundations	50
Building Structures	
Stations – envelope (not including roof membrane)	50
Stations – roof membrane	20
Stations – structure	100

Infrastructure – Major Elements	Minimum Design Service Life (Years)
Shelter and Canopies – envelope (including roof membrane)	50
Shelter and Canopies – structure	75
Stop Platforms, including foundations	75
Utility Complexes perimeter walls, excluding foundations	40
Utility Complexes perimeter wall foundations	75
Lewis Farms Storage Facility Building – structure	75
Lewis Farms Storage Facility Building – envelope (not including roof membranes)	50
Lewis Farms Storage Facility – roof membrane (standing seam)	50
Lewis Farms Storage Facility – roof membrane (TPO)	20
Gerry Wright OMF Building B – structure	75
Gerry Wright OMF Building B – envelope (including roof membrane)	50
Gerry Wright OMF Building B – roof membrane (standing seam)	50
Gerry Wright OMF Building B – roof membrane (TPO)	20
Track	
Direct fixation Track (fastening components)	20
Embedded track (fastening components and infill concrete)	25
Ballasted Track (ballast/subballast)	20
Concrete Ties	40
Rail	25
Rail (curved track with radius < 150m)	15
Switches/Crossovers (including switch points/frogs)	20
Civil	
Stormwater Management System	75
Systems Elements	
TPSS (transformers and rectifiers), switchgear, wiring, and cabling	30
TPSS building	40
OCS Poles	50
OCS wire (excluding contact wire) and supports	30
Traffic Signal Equipment	40
Switch machines	30
All cables, conductors, wires, and ropes	30

Infrastructure – Major Elements	Minimum Design Service Life (Years)
All junction boxes, enclosures and housings	30

1-2.10 SPECIAL DESIGN OBLIGATIONS

1-2.10.1 Lewis Farms Geotechnical and Environmental

A. The Lewis Farms Site was part of an historic wetland that covered large areas of west Edmonton. Soil conditions are expected to be generally poor consisting of peat or organic fill/soil, overlying compressible and frost-susceptible clays and silts, over sand and glacial till. The groundwater table could also be high. Project Co shall undertake a thorough geotechnical investigation to characterize the subsurface soil and groundwater conditions at the Lewis Farms Site. The City completed a desktop study and a limited field investigation for the Lewis Farms Site. The results of these investigations are available in the Disclosed Data.

B. The Natural Area NW 7009, also known as Muskakosi Natural Area (MNA), is immediately adjacent to the west boundary of the Lewis Farms Site. Refer to Schedule 10 [*Environmental Performance Requirements*] for requirements for activities adjacent to the MNA. All construction activities shall be undertaken to avoid release of any sediment, runoff, debris, contaminants or other matter into the MNA. No activities shall encroach on MNA lands unless authorized in writing by the City and, where required, by other levels of government.

1-2.10.2 Gerry Wright OMF Geotechnical

A. The City completed a limited geotechnical investigation at the Gerry Wright OMF Site. The results of that investigation are available in the Disclosed Data. This limited geotechnical investigation suggests that soil conditions underlying the site may consist of surficial fill (the history and construction quality of which are unknown) over organic clays and discontinuous pockets of peat, overlying glacial till. Project Co shall undertake a detailed geotechnical investigation to characterize the subsurface soil and groundwater conditions at the Gerry Wright OMF Site. The design of Infrastructure in the Gerry Wright OMF shall be based on the findings of Project Co's geotechnical investigation and shall include settlement control measures to ensure the integrity and serviceability of the completed Infrastructure over the required Design Service Life. The design of Trackway within the Gerry Wright OMF shall also comply with the requirements of Sections 3-1.1.5.1 [*General*], 4-1.9.1 [*General*], and 4-2.1.1 [*General*] of this Schedule.

1-2.10.3 EPCOR 240 kV Overhead Transmission Power Line within the TUC

A. An EPCOR 240 kV overhead transmission power line crosses 87 Avenue generally in a north-south direction between Anthony Henday Drive and the east TUC limit. A transmission lattice tower is located within the 87 Avenue interchange loop ramp. Minimum horizontal and vertical clearance or safe limit of approach shall be met when coordinating with EPCOR.

1-2.10.4 Not Used

1-2.10.5 Foundation Piles in Close Proximity to Sewers Along 87 Avenue

A. Refer to Section 4-3.1.3 *[87 Avenue Elevated Guideway Piles Close to Sewer Lines]* of this Schedule for requirements when piling in close proximity of sewer lines along the 87 Avenue Elevated Guideway.

1-2.10.6 MacKinnon Ravine Pedestrian Bridge

A. The widening of Stony Plain Road is expected to impact a section of timber railings and concrete end supports of the existing MacKinnon Ravine Pedestrian Bridge, a trestle footbridge located on the south side of Stony Plain Road and 148 Street. Carry out Project Work in this vicinity in accordance with Section 4-3.4 *[MacKinnon Ravine Pedestrian Bridge]* of this Schedule.

1-2.10.7 Not Used

1-2.10.8 Interface with Valley Line LRT Stage 1 along 102 Avenue

A. Lands are shown to overlap between Valley Line LRT Stage 1 and Valley Line LRT Stage 2 between 103 Street and 102 Street on 102 Avenue.

B. Replace existing Roadway and sidewalk surfaces with concrete pavers and provide trackway tie-in to 102 Street Stop. Installation of pavers shall be as defined in Section 3-2.11.11 *[102 Avenue (107 Street to 102 Street)]*, Section 2-4.7 *[Downtown Opportunity Area Special Requirements]*, and Section 2-14.10 [*Downtown Character Zone Landscape Requirements*] of this Schedule. The following paving materials shall be procured by the City as part of the Valley Line LRT Stage 1 contract and supplied to Project Co for use within this segment:

1. 305 m^2 of 600 x 200 x 100 mm Unilock Umbriano Midnight Sky™ (cycle track);
2. 50 m^2 of 600 x 200 x 70 mm Unilock Umbriano Midnight Sky™ (amenity zone);
3. 43 m^2 of 600 x 200 x 70 mm Unilock Umbriano French Grey™ (amenity zone);
4. 2342m^2 of 600 x 200 x 70 mm Unilock Umbriano Granada White™ (amenity zone);
5. 19 m^2 of 300 x 100 x 100 mm Unilock Umbriano Midnight Sky™ (cycle track);
6. 10 m^2 of 300 x 100 x 70 mm Unilock Umbriano Midnight Sky™ (amenity zone);
7. 858 m^2 of 300 x 100 x 100 mm Unilock Umbriano French Grey™ (roadway);
8. 11 m^2 of 300 x 100 x 70 mm Unilock Umbriano French Grey™ (amenity zone);
9. 174 m^2 of 300 x 100 x 100 mm Unilock Umbriano Granada White™ (crosswalk);
10. 11 m^2 of 300 x 100 x 70 mm Unilock Umbriano Granada White™ (amenity zone);
11. 58 m^2 of 300 x 100 x 100 mm Unilock Series 3000 Black Granite™ (transverse bands, roadway and cycle track);
12. 80 m^2 of 300 x 100 x 70 mm Unilock Series 3000 Black Granite™ (transverse bands, sidewalk);
13. 40 m^2 of 600 x 300 x 70 mm Unilock Series 3000 Black Granite™ (amenity area); and
14. 39 m^2 of 300 x 100 x 100 mm Unilock Series 3000 Glacier™ (delineation pavers).

C. Install furnishings as defined in Section 3-2.11.11 *[102 Avenue (107 Street to 102 Street)]*, Section 2-4.7 *[Downtown Opportunity Area Special Requirements]*, and Section 2-14.10 [*Downtown Character Zone Landscape Requirements*] of this Schedule. The following furnishings shall be procured by the City as part of the Valley Line LRT Stage 1 contract and supplied to Project Co for use within this segment:

1. four (4) waste and recycling receptacles;

2. two (2) corral bicycle racks;

3. two (2) “Q” racks;

4. eighteen (18) precast benches, including LED lighting, with adjacent precast concrete slab;

5. sixteen (16) precast concrete curbs at street light bases (two (2) pieces per location);

6. eight (8) bollards;

7. ninety-three (93) pieces (18 m^2) tactile warning surface indicators for curb ramps;

8. six (6) tree grates;

9. twelve (12) LED accent lighting Q vaults; and

10. eighteen (18) free-standing pedestrian light poles, including sixteen (16) pedestrian light poles and two (2) double davit shared use poles).

D. A vault with duct bank exists west of 102 Street Stop along the Trackway for Project Co to complete Infrastructure tie-in to Valley Line LRT Stage 1.

1-2.10.9 Wildlife Crossing Bench

A. Install one Wildlife Crossing Bench on each abutment slope of the Stony Plain Road Bridge. Refer to Section 22.3 [*Permanent Accommodation of Wildlife Movement*] of Schedule 10 [*Environmental Performance Requirements*], and Section 2-14.9.3.5C *[Park Parcel Specific Requirements]* and Section 4-3.2.14 [*Wildlife Crossing*] of this Schedule for specific requirements.

1-2.11 SURVEY

1-2.11.1 Coordinate System

A. The survey control coordinate system shall be in *Universal Transverse Mercator (UTM)* and the control stations coordinate values shall be delivered in NAD83 - 3TM referenced to the 114 meridian as well as in NAD 83 CSRS format.

B. Any Design prepared in ground coordinates shall be converted from ground to grid coordinates for the Record Drawing submission, and ground to grid coordinate conversion factor(s) shall be submitted to the City as part of the Design Data.

1-2.11.2 Control Monuments

A. Establish a Project survey control using City’s coordinate system for the Design and Construction and do checks as required to confirm the control system’s accuracy. Provide multiple control points along the alignment to maintain accuracy.

1-2.11.3 Alberta Survey Control Markers

A. Protect all existing permanent Alberta Survey Control Markers (ASCM).

B. ASCM shall not be removed, altered or destroyed except to the extent that they are in direct conflict with the Infrastructure. Where an ASCM is required to be removed, altered or destroyed the following process shall be followed:

1. provide the City 30 days’ notice in advance of when an ASCM needs to be removed;

2. replace any ASCM's that must be removed to facilitate Construction of the Infrastructure in accordance with drawing 6600 of the *City of Edmonton Design and Construction Standards* prior to Service Commencement;

3. all new ASCM's shall be installed as close as possible to the ASCM that was removed with the final decision on location made jointly between the City and Project Co; and

4. the City will complete a final survey on ASCM to integrate the new ASCM into the provincial spatial infrastructure.

1-2.11.4 Horizontal Control

A. Use the Project survey control coordinate system as the basis for all Project Work.

B. The Project survey control coordinate system shall have a second order standard of accuracy.

C. All surveys made for the Construction of the Infrastructure shall be adjusted by holding the monuments fixed.

D. Provide a minimum of one (1) survey control per area, as defined as level 1 of the Work Breakdown Structure.

1-2.11.5 Vertical Control

A. Vertical control shall be based on the *Canadian Geodetic Vertical Datum of 2013* (CGVD2013).

1-2.12 ENVIRONMENTAL CORROSION

A. Determine the environmental corrosion conditions and ensure all material selections, designs and coatings used to protect metallic structures are suitable to meet the Design Service Life in accordance with Section 1-2.9 [*Design Service Life*] of this Schedule.

SECTION 1-3 GENERAL CONSTRUCTION REQUIREMENTS

1-3.1 CONSTRUCTION CONSTRAINTS

This Section 1-3 sets out a certain construction constraints. For the avoidance of doubt, these constraints are in addition to other constraints set out in this Schedule and are not intended to be exhaustive.

Coordination and Access

A. Maintain continuous, safe and effective access for pedestrians, bicycle traffic and vehicles to all properties including businesses, residential and institutions.

B. Where existing access is Barrier-Free, maintain Barrier-Free access using existing or alternate routes.

1-3.1.2 Festivals & Events

A. Comply with the requirements of Schedule 12 *[Communications and Engagement]* pertaining to festivals and events.

1. Notify the applicable organizers of such events of the intended Construction Schedule.

2. Co-ordinate the implementation of emergency evacuation and response plans with the City to accommodate such festivals and events, including any set-up and tear-down periods.

3. For the duration of any suspension of Construction activities required to accommodate such festivals and events, all affected Sites shall be left in a safe and secure condition.

1-3.1.3 Lewis Farms Transit Centre and Park and Ride

A. All directional movements at the Webber Greens Drive / Lewis Farms Park and Ride site access intersection shall be maintained during Construction.

B. Access closures are not permitted to the two (2) existing accesses to the Lewis Farms Transit Centre off Webber Greens Drive and the existing access to the Lewis Farms Transit Centre from the Lewis Farms Park and Ride access road.

C. The existing Lewis Farms Park and Ride shall remain operational during Construction with a minimum of 200 functional parking stalls required at all times.

1. Maintain public access to the existing Park and Ride throughout Construction, including a minimum of one (1) clear, direct path of travel for pedestrians between the Lewis Farms Transit Centre and existing park and ride facilities.

2. Maintain access to the TUC throughout construction through the Lewis Farms Park and Ride, via the existing access or future access from the gravel parking lot.

D. Any site clearing and preparation work within the Lewis Farms Site, including the use or removal of the existing stockpiles, is the responsibility of Project Co. Soils which are removed, shall be removed in accordance with Schedule 10 *[Environmental Performance Requirements]*. Geotechnical information regarding the condition of the existing stockpiles can be found in the Disclosed Data.

E. Construction access to the Lewis Farms Park and Ride shall be through the Webber Greens Drive / Lewis Farms Park and Ride site access intersection only.

1-3.1.4 EPCOR Transmission Powerlines in the TUC

A. Adhere to EPCOR Distribution and Transmission Inc. (EDTI) *Limits of Approach* for temporary and permanent installations, people or equipment in relation to the overhead transmission power lines within the TUC.

B. Coordinate Design with EDTI as described in Schedule 28, Part 2 [*Utility Matters*] for acceptance.

C. Confirm construction limitations around EDTI facilities in advance of any construction activities being performed.

1-3.1.5 Co-ordination with Stakeholders in the TUC

A. Not Used.

1-3.1.6 Construction Around West Edmonton Mall

A. Access closures off 87 Avenue to West Edmonton Mall will not be permitted between December 1 and January 1 of any year. At a minimum, maintain right-in / right-out at each access.

B. Access to the WEM Transit Centre is subject to Section 4.1 of the Agreement.

1-3.1.7 Construction Around the Misericordia Community Hospital

A. Maintain at least one (1) all-directional vehicular access to Misericordia Community Hospital off 87 Avenue at all times.

B. Maintain internal traffic circulation and access to Misericordia Community Hospital at all times.

C. The existing heliport, which is located in between the east limit of the Misericordia Community Hospital and Capital Care McConnell Place West building and approximately 40 m north of 87 Avenue, should be considered an active site as air ambulance services to/from the north will continue for the duration of Construction. Submit a constructability plan identifying where cranes or other lifting devices will be located and the radius required for hoisting to ensure heliport services will not be interrupted. Coordinate with Covenant Health as required.

D. The area north of the Misericordia Station which is within the City Lands but is owned by Alberta Health Services shall not be used by Project Co as a lay down area.

1-3.1.8 Construction Around Meadowlark Health and Shopping Centre (156 Street and 87 Avenue)

A. No more than one (1) vehicular access to the Meadowlark Health and Shopping Centre off Meadowlark Road shall be closed at any time.

B. Maintain full access to the existing Meadowlark Transit Centre, including bus and pedestrian connections, until such time that Construction must impact the left-in/left-out access to the transit centre rendering it inoperable. Provide minimum 150 Days notification to the City for the City to notify the mall and make other arrangements for community route service.

C. Upon closure of the Meadowlark Transit Centre, it shall not be used by Project Co as a lay down area unless Project Co receives agreement from the owner of the Meadowlark Health and Shopping Centre and from the City.

1-3.1.9 Construction Around Edmonton Fire Station 12 (9020 – 156 Street)

A. Maintain access to and from Fire Station 12 at all times for Edmonton Fire Rescue Services.

B. Coordinate any Construction impacting the intersection of 156 Street and Meadowlark Road with Emergency Services. Refer to Section 1-4.2.2 *[Roadway Restriction Construction Requirements]* of this Schedule.

1-3.1.10 Construction Around Orange Hub (10045 – 156 Street)

A. Barrier-Free access to/from the Orange Hub, including DATS drop off, must be maintained at all times.

1. Coordinate with the City to provide temporary DATS drop off and pedestrian access to the Orange Hub.

1-3.1.11 Construction Around West Block Glenora (142 Street and Stony Plain Road)

A. Coordinate removal of the temporary parking area on north side of Stony Plain Road to the east of 142 Street with the West Block Glenora developer or condominium board, as applicable.

B. Provide a minimum six (6) months' Notice to the City prior to removal of the temporary parking area at West Block Glenora.

1-3.1.12 Existing Stony Plain Road Bridge Replacement

A. The Existing Stony Plain Road Bridge shall remain open to traffic until all utilities are relocated from the bridge.

B. The entirety of the Existing Stony Plain Road Bridge and its associated components shall be removed prior to the construction of the Stony Plain Road Bridge.

C. Refer to Closure 8 in Section 1-4.2.5 [*Roadway Section Restrictions and Roadway Categories*] of this Schedule.

1-3.1.13 Construction Around MacEwan University (10700 – 104 Avenue)

A. No more than one (1) access to MacEwan University off 104 Avenue may be closed at any time between 112 Street and 109 Street.

B. At no time shall two (2) adjacent accesses to MacEwan University off 104 Avenue between 109 Street and 106 Street be simultaneously closed.

C. At no time shall crosswalks across 104 Avenue at two (2) adjacent intersections be simultaneously closed between 112 Street and 105 Street. Provide a minimum of 14 Days' Notice to the City in advance of changes to crosswalk accesses. Crosswalks in service shall be marked, visible, illuminated, free of debris and safely accessible.

D. Three of the four crosswalks at the 104 Avenue and 109 Street intersection shall be maintained at all times. During any closures of 109 Street between 104 Avenue and 105 Avenue, Project Co shall have no permitted use of the road for construction staging, storage, field office or related use.

E. Submit a hoarding plan and schedule for Construction activities at MacEwan University.

1-3.1.14 Construction Around Edmonton Fire Station 2 (10217 – 107 Street)

A. Maintain access to and from Fire Station 2 at all times for Edmonton Fire Rescue Services. Swept path analysis shall be completed by Project Co using a ladder truck as a design vehicle to confirm any temporary and permanent access.

B. Coordinate any Construction activities on 107 Street with Edmonton Fire Rescue Services.

1-3.1.15 Monitoring Wells in the Lands

If Project Co encounters any monitoring wells in the Lands during Construction:

A. if completion of Construction requires excavation to the full depth of the well, Project Co may remove the well during excavation for Construction; or

B. if completion of Construction does not require excavation to the full depth of the well, over-drill the well with an auger size that is greater than 6 inches, remove the PVC casing and sand pack and fill the resulting hole with bentonite.

1-3.1.16 Bats Observed in Lower Groat Ravine

A. Carry out all Construction activities in lower Groat Ravine in accordance with Section 16.2 *[Restricted Activities for Bat Mitigation Measures]* of Schedule 10 [*Environmental Performance Requirements*].

1-3.2 PIPELINE AND POWERLINE CORRIDORS

A. Pipeline corridors cross the Lands at the following locations:

1. the TUC; and

2. the Gerry Wright OMF East Utility ROW and Gerry Wright OMF West Utility ROW at the Gerry Wright OMF Site.

B. Powerline corridors cross the Lands at the following locations:

1. 87 Avenue and 161 Street;

2. 87 Avenue and 170 Street; and

3. the TUC.

C. All Construction activities within the vicinity of pipeline and powerline corridors shall comply with Schedule 28 *[Project Approvals and Utility Matters]*.

1. No pipelines within the Gerry Wright OMF West Utility ROW shall, at any point during the Construction of the Infrastructure, experience loading effects exceeding the maximum loading effects exerted by any single piece of equipment included in Appendix 5-1E [*Gerry Wright OMF West Utility ROW Construction Equipment Loads]*.

    a. Loading effects shall be determined with equipment located at existing ground level.

2. All Construction activities within pipeline corridors, including the Gerry Wright OMF East Utility ROW and Gerry Wright OMF West Utility ROW, shall adhere to the pipeline agreements and all field directions given by an authorized Pipeline Company representative.

D. The pipeline and powerline corridors are shown in the Utilities Reference Drawings in the Disclosed Data.

1-3.3 CONSTRUCTION NOISE

A. Comply with the Noise Control requirements in the City of Edmonton Community Standards Bylaw 14600 and Edmonton Urban Traffic Noise Policy (C506A).

B. Notify the public of any noise disturbances in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement].*

1-3.4 CONSTRUCTION VIBRATION CONTROL

A. Do not cause or permit damage to be caused to any buildings, structures or Utilities, whether by vibration or otherwise. Without limiting the preceding sentence, during Construction, vibrations shall be limited to the following levels measured at the foundations or in the ground (between grade and foundation level) adjacent to any building:

1. 12.7mm/s PPV at any building with reinforced concrete, steel or timber (no plaster) construction (e.g. industrial buildings, bridges, masts, concrete retaining walls and unburied pipelines);

    a. these buildings shall be classified as “Building Category 3” for NPE purposes when monitoring vibration levels during the Construction Period;

2. 7.6mm/s PPV at any building with non-reinforced concrete and masonry (no plaster) construction (e.g. non-reinforced concrete and masonry buildings, masonry retaining walls and buried pipelines);

    a. these buildings shall be classified as “Building Category 2” for NPE purposes when monitoring vibration levels during the Construction Period;

3. 5mm/s PPV at any building with non-engineered timber or masonry construction (e.g. typical timber-frame home);

    a. these buildings shall be classified as “Building Category 2” for NPE purposes when monitoring vibration levels during the Construction Period; and

4. 3mm/s PPV at any building that is extremely susceptible to vibration damage (e.g. historic structures, churches, MacEwan University Allard Hall);

    a. these buildings shall be classified as “Building Category 1” for NPE purposes when monitoring vibration levels during the Construction Period.

B. Notify the public of any vibration disturbances in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement].*

1-3.5 MAINTENANCE DURING CONSTRUCTION

A. Provide Notice to the City at least 10 Business Days prior to commencing Project Work at any portion of the City right of way, from one property line to the opposite property line (the “**Occupied Right of Way**”), indicating the boundaries of the Site, the relevant Work Package(s), and the planned beginning occupancy date/time, (the “***Notice of Occupancy***”);

B. For portions of the Lands which:

1. are the City right-of-way, carry out Construction Maintenance of each Occupied Right of Way beginning from the Notice of Occupancy for that Occupied Right of Way and ending on the Construction Completion Date; and

2. are not the City right-of-way, carry out Construction Maintenance of those Lands beginning from the date that access to those Lands is granted pursuant to Section 4.1 of the Agreement and ending on the Construction Completion Date.

C. Maintain the Lands, as delineated in Section 1-3.5B of this Schedule, during the Construction Period, (the “***Construction Maintenance***”), so as to:

1. minimize impact of Construction to the public;

2. maintain Traffic Signal Equipment in accordance with the *Valley Line LRT Traffic Signal Construction and Maintenance Specifications*;

3. promote public safety by maintaining temporary lighting in accordance with *TAC Guide for Design of Roadways Lighting;*

4. adhere to Site Specific Security Plans;

5. maintain cleanliness pursuant to Section 1-8.4 *[Project Cleanliness]* of this Schedule;

6. perform snow and ice control of Roadways, sidewalks and SUPs within each Site in accordance with the City's *Snow and Ice Control Policy, C409* and the *Community Standards Bylaw #14600,* and prevent and remove ice build-up on Transportation Structures;

7. inspect the relevant Lands within 24 hours of receiving a complaint from the public or from the City relating to a pothole, and repair all identified potholes within two days of inspecting the relevant Lands;

8. maintain sidewalks or SUPs to safeguard pedestrian or cyclist accessibility;

9. maintain an accessible, hard surfaced travel path to all bus stops, whether permanent or temporary, including ice, snow and mud control;

10. protect trees in accordance with Section 2-14.15 *[Tree Retention, Removal and Protection]* of this Schedule, notifying the public of tree removals or pruning in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement]*;

11. comply with the environmental requirements pursuant to Schedule 10 *[Environmental Performance Requirements]*; and

12. perform Custodial Maintenance of applicable Infrastructure elements and City installed TVMs and Validators prior to Construction Completion.

D. Prepare and submit a Construction Maintenance Program in accordance with Section 7.2.3 *[Construction Maintenance Program]* of Schedule 4 *[Design and Construction Protocols].*

SECTION 1-4 TRANSPORTATION MANAGEMENT

1-4.1 TRANSPORTATION MANAGEMENT COORDINATION

A. Coordinate Transportation Management with the City in accordance with the procedures set out in this Section 1-4 *[Transportation Management].*

B. Prepare and submit a Transportation Management Plan in accordance with Section 7.4 *[Transportation Management Plan]* of Schedule 4 *[Design and Construction Protocols].*

C. Obtain all necessary OSCAM permits for all Construction that impacts Roadways, sidewalks, SUPs or bus stops (temporary or permanent). The OSCAM permits shall be based on the Accepted Transportation Management Plan and shall geographically align with the proposed staging and timing of the Construction.

D. For each Site where the Construction impacts any Roadway, sidewalk, SUP or bus stop (temporary or permanent):

1. prepare and submit to the City a Traffic Accommodation Request (TAR) in accordance with Section 1-4.2.6 *[Traffic Accommodation Request (TAR)]* of this Schedule*;*

2. for work within the City Lands but outside of the TUC, prepare and include a Traffic Accommodation Plan (TAP) with each TAR, prepared in accordance with Section 1-4.2.7 *[Traffic Accommodation Plan (TAP)]* of this Schedule;

3. for work within the TUC; prepare and include a Traffic Accommodation Strategy (TAS) with each TAR, prepared in accordance with Section 1-4.2.8 *[Traffic Accommodation Strategy (TAS)]* of this Schedule;

4. for each Roadway identified as being a transit route in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]* or acting as a temporary transit route detour during Construction, provide Transit Notification in accordance with the minimum notice periods as set out in Section 1-4.2.10 *[Transit Notification Period]* of this Schedule;

5. arrange bi-weekly site walks with the City to review bus stops, traffic and pedestrian accommodations throughout the site, at locations identified jointly by the City and Project Co;

6. for each category of Roadway closure, provide public notification in accordance with the minimum notice periods as set out in Section 1-4.2.11 *[City Review and Public Notification Period]* of this Schedule; and

7. prior to working in the TUC, Project Co shall ensure all required permitting from Alberta Infrastructure and Alberta Transportation is in place in accordance with Schedule 28 Part 1 *[Project Approvals]*.

1-4.2 TRANSPORTATION MANAGEMENT REQUIREMENTS

1-4.2.1 General

A. Without limiting Section 1-1.6.4.8A7 *[Reference Documents]* of this Schedule and except as otherwise specified herein, Transportation Management shall comply with all applicable laws, codes, standards and regulations, including:

1. Valley Line West LRT Roadways Design and Construction Standards;

2. TAC *Geometric Design Guide for Canadian Roads*;

3. TAC *Bikeway Traffic Control Guidelines for Canada*;

4. City of Edmonton *Procedures for On - Street Construction Safety*; and

5. Alberta Transportation *Traffic Accommodation in Work Zones*.

B. Where an existing Roadway, sidewalk, or SUP route cannot be safely provided through a Site, an alternative route acceptable to the City shall be made available prior to and throughout the duration of the impacted period.

C. Where a route is provided through a Site, provide safety measures sufficient to ensure the safety of all Site users including vehicles, bicycle traffic, pedestrians, workers and equipment.

D. Where access to existing sidewalks, SUPs or crosswalks are closed or restricted due to Construction, install and maintain Barrier-Free, temporary, all-weather reasonable alternative routes for pedestrian and bicycle traffic.

E. Install temporary RRFB rapid flashing beacon pedestrian crossing flashers to support pedestrian crosswalks and bus stop connections where sightlines are restricted due to construction activities and hoarding, or complex traffic accommodation laning exists, including lane reductions, lane expansions, chicanes and/or any other temporary laning configuration that increases driver workload and where existing pedestrian traffic controls have been removed due to Construction activities.

F. Light towers for night time work shall be positioned such that they do not distract or create a visual impairment for oncoming traffic or cause light to spill into adjacent residences and other adjacent properties.

G. All Roadways constructed as detours and open to traffic shall be constructed of asphalt surface.

H. Project Co shall provide a temporary bus stop in a location as directed by the City to replace each permanent bus stop affected by Construction:

1. provide a hard surface at temporary bus stops to maintain accessibility. Hard surfaces shall have an even, non-slip surface that is suitable for wheeled mobility devices in all weather conditions and may consist of asphalt, concrete, wood or any type of comparable hard surface with non-slip overlay. Typical design standards for sidewalk crossfall shall be maintained at all hard surfaced temporary stops. Compacted and maintained 20mm crushed aggregate will be accepted for short-term (3 days or fewer) temporary surfaces at bus stop areas;

2. maintain Barrier-Free accessibility of pedestrian connections to temporary and permanent bus stops. Connections shall have a hard, slip-resistant surface with ramps, where needed, to transition between curbed walks and roadways. When along a roadway, delineate paths connecting to bus stops with, at a minimum, bollards with blue ribbon strung in-between as well as wayfinding signage to direct riders to the stop;

3. where raised curb is not provided at a temporary bus stop:

    a. provide a blue coloured barrier of similar specification to a jersey barrier to assist with wayfinding at the head of the temporary stop. The downward nose pointing in the direction of bus travel and the vertical straight face aligned with the bus front door. Install a bus stop sign provided by the City on top of the blue jersey barrier with the sign mounted a minimum of 2.1m above the ground and pointed inward over the bus stop waiting area so it does not overhang into the adjacent lane;

    b. provide concrete jersey barriers to delineate the roadway from the temporary bus stop. Arrange the jersey barriers in the following configuration to provide spaces to accommodate boarding and alighting from all doors of ETS' fleet:

        i. blue barrier at head of bus-stop;

ii. 1.5m gap for the front doors;

iii. 3.0m barrier;

iv. 4.0m gap for the rear doors;

v. 3.0m barrier;

vi. 2.5m space for the rear doors (articulated bus); and

vii. resume barriers; and

c. provide temporary raised wooden ramp construction or equivalent with non-slip top and accessible connection to the adjacent sidewalk, path or delineated pedestrian travel way.

4. where a raised curb is provided and the pedestrian travelway (sidewalk or SUP) is wider than 1.5m, provide a blue jersey barrier at the head of the temporary stop and install a bus stop sign on the jersey barrier. Where the pedestrian travel way is 1.5m wide or less, install the bus stop sign either at the back-of-walk or directly affixed into concrete so as not to encroach on the accessible clear width;

5. provide wayfinding to temporary bus stops from the existing permanent bus stop location, or from the connecting pedestrian walkway when construction closures necessitate full removal of the road segment of the existing permanent bus stop. Wayfinding will be blue on white and incorporate the words 'ETS Bus Stop' with direction arrows for guidance. Signs shall be placed in a clear line of sight from the closed stops at a minimum height of 1.2m to the base of the sign. Signage shall be a minimum 60cm by 60cm with a minimum font size of 10 cm for informational text;

6. where a temporary bus stop is installed due to construction at a location where there is reduced to no roadway lighting, Project Co shall provide lighting so that patrons traveling to, from, and waiting at the bus stop are visible and safe. Lighting shall not encroach on the accessible clear width along any sidewalks, shared use paths or delineated travel path to/from a bus stop;

7. when an existing or temporary bus stop with a bench and/or waste receptacle is relocated due to construction activities, equal replacement amenities shall be provided at the temporary bus stop replacing it, unless otherwise directed by the City. Waste receptacles at bus stops will be installed by the City and bus stop benches will be installed by the City's advertising partner. Notify the City in writing, not less than 17 Business Days and not more than 25 Business Days prior to relocating a bus stop;

8. when an existing or temporary bus stop with a shelter is relocated due to construction activities and the new temporary stop will be in use for a minimum of an entire winter and/or 9 months, Project Co shall provide a replacement shelter at the temporary bus stop replacing it, unless otherwise directed by the City. Project Co shall also supply and install a precast or cast-in-place concrete pad to support shelter anchoring in accordance with Standard Plan series 4100 of the *Valley Line West LRT Roadways Design and Construction Standards*. No power supply is required for any replacement shelters.

9. Project Co shall not be responsible for the installation of a temporary bus stop where the City has directed that it is required outside of the City Lands.

I. Project Co will be responsible for communicating transportation management impacts, including lane, road, sidewalk, and alley closures, and trail and bike route disruptions for all transportation modes (including motorists, cyclists and pedestrians) in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement]* and Section 1-4.2.11 *[City Review and Public Notification Period]* of this Schedule.

1-4.2.2 Roadway Restriction Construction Requirements

A. Project Co is responsible for costs of Roadway and Traffic Control Device modifications outside the City Lands to accommodate traffic detours and bus rerouting as identified in Accepted TARs.

B. All existing turning movements shall be maintained at all signalized intersections during Peak Traffic hours except where it is unsafe to do so as confirmed through a Hazard Analysis or where they will be removed permanently, and in which case the TAP shall include provisions for detours to compensate for the affected turn movements.

C. Monitor and maintain all traffic accommodation for compliance with the Accepted Transportation Management Plan, TARs, TAPs, TASs and OSCAM permits using ACSA certified personnel with working knowledge of the City of Edmonton *Procedures for On Street Construction Safety* and Alberta Transportation *Traffic Accommodation in Work Zones*.

D. Implementation of any closure without an Accepted TAR will be considered a Non-Performance Event as specified in Schedule 16.

1-4.2.2.1 City Right-of-Way Requirements

A. The minimum number of traffic lanes which must remain open on any Roadway within the City right-of-way shall comply with the requirements of Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories].* In order to be considered open in accordance with this Section 1-4.2.2.1.A, a lane which is on a Roadway which:

1. is not an existing transit route, as identified on Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories],* shall have a width of at least 3.35 m.

2. is an existing transit route, as identified on Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories],* shall have an unobstructed envelope width of at least 3.5 m and be designed to accommodate all required bus turn movements and manoeuvres through swept path analysis.

B. All existing turning movements shall be maintained at either the Meadowlark Road / 156 Street intersection or the 90 Avenue / Meadowlark Road intersection at any time.

C. During Peak Traffic hours, no two adjacent signalized intersections shall have their respective existing traffic capacity reduced by greater than 50% at the same time and in the same travel direction.

D. Where a signalized traffic intersection has a capacity reduction of greater than 50%, all adjacent traffic intersections shall be operating at no less than 85% capacity during Peak Traffic hours.

E. For the purpose of this Section 1-4.2.2 *[Roadway Restriction Construction Requirements]*, percentages shall be based on the number of open traffic lanes prior to restrictions, relative to the number of open traffic lanes during the restrictions.

F. Closure of Roadways within the Lands shall only be permitted if alternative routes are available on adjacent Roadways with the same or higher classifications as defined in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]*.

G. Full intersection closures will not be permitted at the following intersections, except for overnight or weekend closures for specific construction activities including, but not limited to girder erection and rail installation, subject to an Accepted TAR.

1. Webber Greens Drive and the access to Lewis Farms Park and Ride;

2. 87 Avenue / 178 Street;

3. 87 Avenue / 170 Street;

4. 87 Avenue / 159 Street;

5. Stony Plain Road / 156 Street;

6. Stony Plain Road / 149 Street;

7. Stony Plain Road / 142 Street;

8. Stony Plain Road / 124 Street;

9. 104 Avenue / 116 Street; and

10. 104 Avenue / 109 Street.

1-4.2.2.2 TUC Requirements

A. For Construction in the TUC, Project Co shall assume the roles of Contractor, Consultant and Municipality as set out in Alberta Transportation *Traffic Accommodation in Work Zones.*

B. For any Construction impacting traffic in the TUC, submit a TAS in accordance with Section 1-4.2.8 *[Traffic Accommodation Strategy]* and Section 1-4.2.11 *[City Review and Public Notification Period]* of this Schedule to the City.

C. During any construction works in the TUC that involve any speed reductions or Lane Closures, Project Co shall provide continuous traffic monitoring along the interchange ramps to ensure traffic queuing does not extend onto, and impact traffic on, Anthony Henday Drive.

D. Approved detour routes for lane closures within the TUC are defined in Figure 1-4.2.1 *[Approved Detour Routes during Ramp Closures for Track Installation]*, Figure 1-4.2.2 *[Approved Detour Routes during Mainline Anthony Henday Drive and Ramp Closures for Girder Erection across Northbound Anthony Drive]*, and Figure 1-4.2.3 *[Approved Detour Routes during Mainline Anthony Henday Drive and Ramp Closures for Girder Erection across Southbound Anthony Drive].*

Figure 1-4.2.1 Approved Detour Routes during Ramp Closures for Track Installation

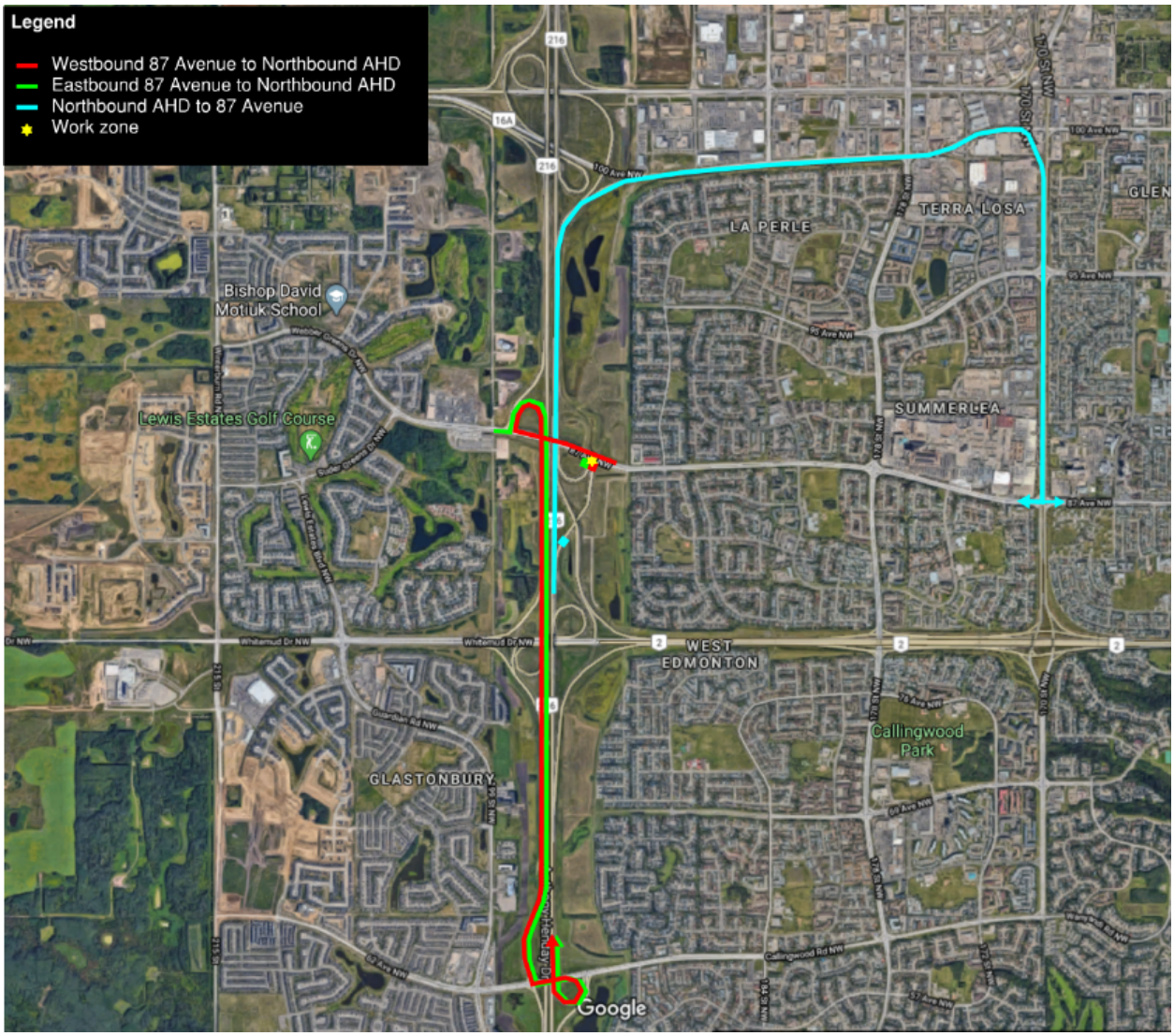


Figure 1-4.2.2 Approved Detour Routes during Mainline Anthony Henday Drive and Ramp Closures for Bridge Construction Activities across Northbound Anthony Drive

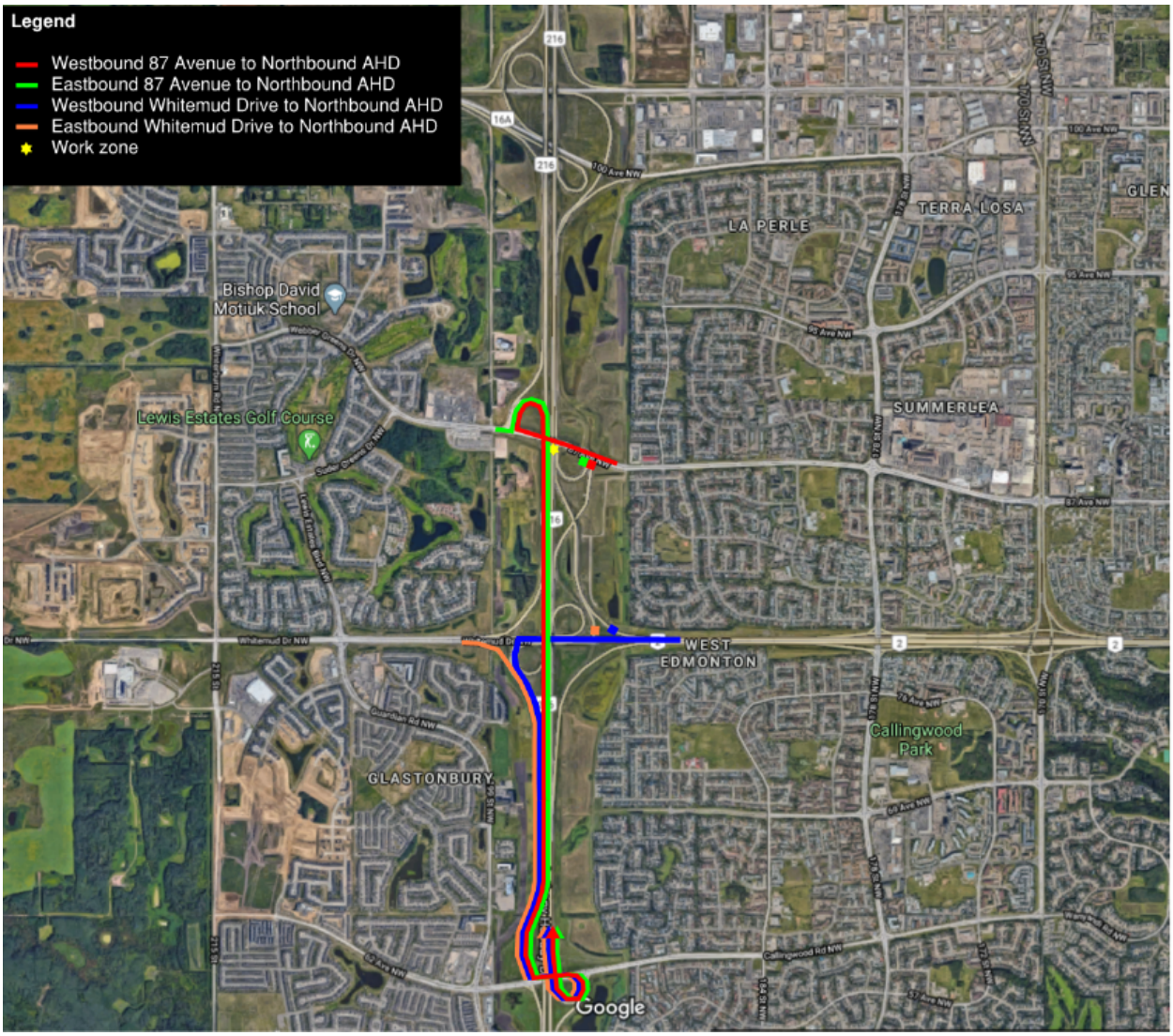
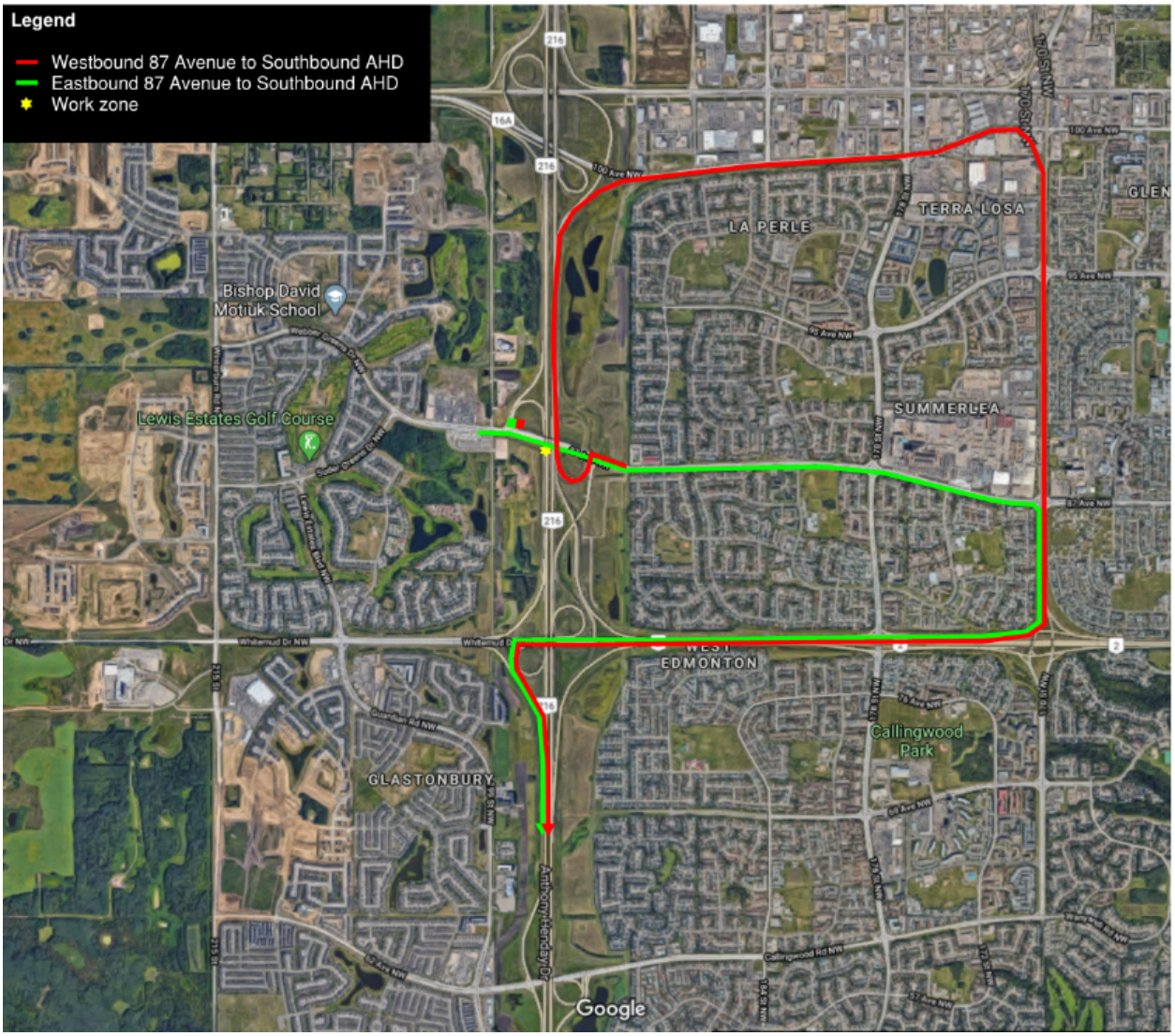


Figure 1-4.2.3 Approved Detour Routes during Mainline Anthony Henday Drive and Ramp Closures for Bridge Construction Activities across Southbound Anthony Drive.



E. Lane Closures are permitted on Roadways within the TUC as follows:

1. Lane Closures on the ramp from northbound Anthony Henday Drive to 87 Avenue are only permitted between 20:30 and 05:30 on Saturday or Sunday nights for Track installations. The approved detour route must be identified within the TAS.

2. Lane Closures on the ramp to northbound Anthony Henday Drive from Whitemud Drive are only permitted between 20:30 and 05:30 on Saturday or Sunday nights for bridge activities which require the closure of northbound Anthony Henday Drive. The approved detour route must be identified within the TAS.

3. Lane Closures on the ramp from 87 Avenue to northbound Anthony Henday Drive are only permitted between 20:30 and 05:30 on Saturday or Sunday nights for Track Installations, or for bridge activities which require the closure of northbound Anthony Henday Drive. The approved detour route must be identified within the TAS.

4. Lane Closures on the ramp to southbound Anthony Henday Drive from 87 Avenue are only permitted between 20:30 and 05:30 on Saturday or Sunday nights for bridge activities which require the closure of southbound Anthony Henday Drive. The approved detour route must be identified within the TAS.

5. Lane Closures on the ramp from southbound Anthony Henday Drive to 87 Avenue are not permitted;

6. Notwithstanding this Section 1-4.2.2.3 *[TUC Requirements]*, the existing number of turning lanes at the 87 Avenue / ramp to northbound Anthony Henday Drive and 87 Avenue / ramp from northbound Anthony Henday Drive intersections may be reduced to enable staging of the intersection reconstruction and track installation, subject to an Accepted TAS, provided:

    a. all directional turning movements are maintained; and

    b. reduction in the number of lanes does not cause traffic queuing to extend onto, and impact traffic on, Anthony Henday Drive.

7. The minimum number of traffic lanes which remain open on 87 Avenue through the TUC shall comply with the requirements of Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]*; and

8. All lanes on Anthony Henday Drive shall remain open at all times except:

    a. when a crossover detour is allowed to be in operation subject to an Accepted TAS; or

    b. during short duration, as defined in the Alberta Transportation *Traffic Accommodation in Work Zones,* off peak single lane closures subject to an Accepted TAS.

F. In order to be considered open in accordance with Section 1-4.2.2.2.D, a lane shall have the applicable minimum width in accordance with Alberta Transportation *Traffic Accommodation in Work Zones*.

G. No access to construction sites shall be permitted to/from Anthony Henday Drive except for access to and from the median for pier construction, which will be permitted subject to an Accepted TAS.

H. Crossover detours on Anthony Henday Drive shall:

1. be designed to operate at 50 km/hr;

2. be constructed with an asphalt pavement structure designed to withstand the volume of traffic which will use them;

3. be installed according to the Accepted TAS;

4. maintain access to 87 Avenue;

5. maintain a minimum of a lane northbound and a lane southbound at all times; and

6. only operate between 20:30 and 05:30 on Saturday or Sunday nights.

I. Maintain access to and within the TUC in accordance with all permits issued by Alberta Infrastructure and Alberta Transportation.

J. Temporary lane realignment is permitted on Anthony Henday Drive provided:

1. the number of through traffic lanes on any Roadway shall not be reduced to less than the applicable "Minimum Lanes to Remain Open" as set out in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]*;

2. areas of temporary widening shall be constructed with an asphalt pavement structure designed to withstand the volume of traffic which will use them;

3. the realignment of the lanes shall be designed for a minimum design speed of 60kph and a minimum operating speed of 50kph; and

4. once temporary lane realignments are no longer required, the roadway shall be restored such that any temporary pavement markings are completely removed.

1-4.2.3 Flag-persons

A. All flag-person(s) shall be ACSA certified flag person(s).

B. Flag-person(s) shall be deployed:

1. where required pursuant to the City of Edmonton *Procedures for On-Street Construction Safety*;

2. where required pursuant to Alberta Transportation *Traffic Accommodation in Work Zones;* and

3. for any other situation where deemed necessary by a Hazard Analysis.

1-4.2.4 Record Keeping of Lane Closures/Traffic Control Devices/Collisions

A. Inspect all Traffic Control Devices daily.

B. Throughout the Construction Period maintain accurate daily traffic accommodation inspection records including the following:

1. condition and placement, including changes, additions and removals, of all Traffic Control Devices;

2. compliance with the Transportation Management Plan, TARs, TAPs and TASs;

3. all traffic collisions and near miss incidents;

4. record the dates, times, and content of all messages on all portable changeable message signs (PCMS);

5. date, time and location of Lane Closures;

6. the traffic accommodation closure type as set out in Section 1-4.2.9 *[Traffic Accommodation Closure Types]* of this Schedule; and

7. all other information required for accurate reconciliation of the lane closures and transit impact adjustments pursuant to Schedule 16 [*Payment Mechanism*].

C. Report all traffic collisions and near miss incidents as noted in Project Co's Safety Management Plan to the City and provide a copy of the completed collision or incident report within 72 hours of the occurrence.

D. Prepare and submit to the City an electronic weekly summary of all daily traffic accommodation inspection records on or before the second Business Day of the subsequent week.

1-4.2.5 Roadway Closure Restrictions

A. The number of through traffic lanes on any Roadway shall not be reduced to less than the applicable "Minimum Lanes to Remain Open" as set out in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]*, except during a Full Closure. A parking lane may not be used as one of the "Minimum Lanes to Remain Open" as set out in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]*.

B. Full Closures of a Roadway are only permitted in accordance with the applicable "Allowed Period of Full Closure" as set out in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]*, with closure types defined as follows:

1. Closure 1: A Full Closure is not permitted

2. Closure 2: A single Full Closure is allowed for duration no longer than 28 consecutive days;

3. Closure 3: A single Full Closure is allowed for duration no longer than 365 consecutive days;

4. Closure 4: A single Full Closure is allowed over a long weekend of duration 3 consecutive days where one of the 3 consecutive days is a statutory holiday for the following durations:

    a. where Monday is the statutory holiday, Full Closure shall start no earlier than 7:00 PM on Friday and end no later than 6:00 AM on Tuesday; and

    b. where Friday is the statutory holiday, Full Closure shall start no earlier than 7:00 PM on Thursday and end no later than 6:00 AM on Monday

5. Closure 5: A single Full Closure is allowed for duration no longer than the period of time identified in the Accepted TAR for the closure;

6. Closure 6: Full Closures are allowed for the duration no longer than the period of time as identified in the Accepted TAR for the closure. The TAR will be considered on a case by case basis and acceptance will depend on numerous factors including, but not limited to:

    a. the classification of the roadway;

    b. the traffic / pedestrian / cyclist volumes using the roadway;

    c. adjacent land uses;

    d. adjacent construction work;

    e. the type of proposed closure;

    f. the proposed timing of the closure;

    g. the proposed duration of the closure;

    h. the availability of detour routes;

    i. the construction activity requiring the closure; and

    j. the availability of alternative construction methodologies or staging.

7. Closure 7: Full Closures are allowed for girder erection and bridge demolition for the following durations:

a. regular weekend, Full Closure shall start no earlier than 7:00 PM on Friday and end no later than 6:00 AM on Monday

b. long weekend, where Monday is the statutory holiday, Full Closure shall start no earlier than 7:00 PM on Friday and end no later than 6:00 AM on Tuesday; and

c. long weekend, where Friday is the statutory holiday, Full Closure shall start no earlier than 7:00 PM on Thursday and end no later than 6:00 AM on Monday

8. Closure 8: A Full Closure of Stony Plain Road at the Existing Stony Plain Road Bridge is permitted to enable the demolition of the Existing Stony Plain Road Bridge and construction of the Stony Plain Road Bridge:

    a. the Full Closure is allowed for a duration no longer than 800 consecutive days subject to an Accepted TAR.

    b. the Full Closure is considered to be removed when:

        i. the Stony Plain Road Bridge is substantially complete, subject to the City's acceptance;

        ii. the remaining deficiencies associated with the Stony Plain Road Bridge are considered minor, do not affect the functionality or safety of the bridge and do not require additional lane closures to complete; and

        iii. Stony Plain Road is open to two lanes of traffic at Stony Plain Road Bridge, and Groat Road is open to four lanes of traffic.

9. Closure 9: Full Closure of Anthony Henday Drive in either the northbound or southbound direction accommodated by cross overs, at a time, is allowed for girder installation between 20:30 and 05:30 on Saturday or Sunday nights in accordance with Section 1-4.2.2.3 *[TUC Requirements]* of this Schedule and as identified in the Accepted TAS for the closure;

10. Closure 10: Full Closure of the following ramps is allowed between 20:30 and 05:30 on Saturday or Sunday nights in accordance with Section 1-4.2.2.3 *[TUC Requirements]* of this Schedule and as identified in the Accepted TAS for the closure, to facilitate the cross over for bridge construction activities or the installation of track:

    a. loop ramp onto southbound Anthony Henday Drive from 87 Avenue;

    b. loop ramp onto northbound Anthony Henday Drive from 87 Avenue;

    c. directional ramp onto northbound Anthony Henday Drive from Whitemud Drive; and

    d. directional ramp onto 87 Avenue from northbound Anthony Henday Drive; and

11. Closure 11: Full Closures of Stony Plain Road are permitted during the full 800 consecutive day duration of the Stony Plain Road Bridge Closure (Closure 8). Before Closure 8 is implemented and after Closure 8 is removed, Full Closures of Stony Plain Road shall only be permitted in accordance with Closure 6. Two-way traffic on 136 Street across Stony Plain Road shall be maintained at all times, except at the following times subject to an Accepted TAR:

    a. On weekends and statutory holidays; and

    b. During Alberta Public Schools vacation periods as published on their website.

C. For roads within the City right-of-way not identified in Table 1-4.2.5 [*Roadway Section Restrictions and Roadway Categories*], the “Minimum Lanes to Remain Open” shall be equal to the “Total Existing Number of Lanes”, and Closure 6 is applicable.

D. Roadway Categories required by Section 2.3 *[Lane Closure Adjustments]* in Schedule 16 *[Payment Mechanism]* are assigned to each Roadway Section in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories].* Any roadway type, arterial, collector or local, of either public or private access not identified as permanent closure and not listed in the table shall not be closed unless identified in the Accepted TAR for the closure.

Table 1-4.2.5 Roadway Section Restrictions and Roadway Categories

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
Webber Greens Drive	**Suder Greens Drive**	**199 Street**	**Arterial**	**3**	**3-4**	**3-4**	**2**	**1**	**N**	**Y**
87 Avenue	**199 Street**	**West TUC Limit**	**Arterial**	**3**	**4**	**4**	**2**	**1**	**N**	**Y**
87 Avenue	**West TUC Limit**	**East TUC Limit**	**Arterial**	**3**	**4**	**4**	**2**	**1**	**N**	**Y**
Ramp from SB Anthony Henday Drive (West)	AHD	87 Avenue	Arterial	3	3	3	3	1	Y	Y
Ramp to SB Anthony Henday Drive (West)	87 Avenue	AHD	Arterial	3	1	1	1	10	Y	N
Ramp from NB Anthony Henday Drive (East)	AHD	87 Avenue	Arterial	3	3	3	3	10	Y	N
Ramp to NB Anthony Henday Drive (East)	87 Avenue	AHD	Arterial	3	2	2	2	10	Y	Y
Ramp to NB Anthony Henday Drive (East)	Whitemud Drive	AHD	Arterial	3	1	1	1	10	Y	N
Anthony Henday Drive Mainline	Whitemud Drive	Stony Plain Road	Freeway	3	6	6	4	9	Y	N
87 Avenue	**East TUC Limit**	**178 Street**	**Arterial**	**3**	**4**	**4**	**2**	**1**	**N**	**Y**
189 Street	87 Avenue	86A Avenue	Collector	2	2	2	2	6	N	Y
189 Street	87 Avenue	87A Avenue	Collector	2	2	2	2	6	N	Y
182 Street	87 Avenue	89 Avenue	Collector	2	2	2	2	6	N	Y
182 Street	87 Avenue	86 Avenue	Collector	2	2	2	2	6	N	Y
87 Avenue	**178 Street**	**170 Street**	**Arterial**	**3**	**4**	**4**	**2**	**1**	**N**	**Y**
178 Street	87 Avenue	89 Avenue	Arterial	3	5	5	4	7	N	Y
178 Street	87 Avenue	86 Avenue	Arterial	3	5	5	4	7	N	Y
175 Street	87 Avenue	86 Avenue	Collector	2	2	2	2	6	N	Y
172 Street	87 Avenue	86 Avenue	Local	2	2	2	2	6	N	N
87 Avenue	**170 Street**	**165 Street**	**Arterial**	**3**	**4**	**4**	**2**	**1**	**N**	**Y**
170 Street	87 Avenue	Whitemud Drive	Arterial	3	7	7	5	7	Y	Y

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
170 Street	87 Avenue	90 Avenue	Arterial	3	7	7	5	7	Y	Y
169 Street	87 Avenue	85 Avenue	Collector	2	2	2	2	6	N	Y
87 Avenue	**165 Street**	**Meadowlark Road**	**Arterial**	**1**	**4**	**4**	**2**	**1**	**N**	**Y**
165 Street	87 Avenue	Misericordia Hospital	Collector	2	2	2	2	6	N	Y
164 Street	87 Avenue	83 Avenue	Local	2	2	2	2	6	N	N
163 Street	87 Avenue	88 Avenue	Arterial	1	4	3	2	1	N	N
161 Street	87 Avenue	86 Avenue	Local	2	2	2	2	6	N	N
159 Street	87 Avenue	83 Avenue	Arterial	1	4	4	2	1	N	Y
87 Avenue	Meadowlark Road	155 Street	Arterial	1	4	4	2	1	N	Y
Meadowlark Road	**87 Avenue**	**156 Street**	**Arterial**	**1**	**4**	**2**	**2**	**1**	**N**	**Y**
88A Avenue	Meadowlark Road	159A Street	Local	2	2	2	2	6	N	N
88B Avenue	Meadowlark Road	159A Street	Local	2	2	2	2	6	N	N
89 Avenue	Meadowlark Road	160 Street	Local	2	2	2	2	6	N	N
89 Avenue	Meadowlark Road	Meadowlark Mall	Local	2	2	2	0	6	N	N
90 Avenue	Meadowlark Road	156 Street	Local	2	2	2	2	6	N	N
156 Street	Meadowlark Road	90 Avenue	Arterial	2	4	4	2	6	N	N
156 Street	**Meadowlark Road**	**99 Avenue**	**Arterial**	**1**	**4**	**2**	**2**	**1**	**N**	**N**
91 Avenue	156 Street	155 Street	Local	2	2	2	2	6	N	N
92 Avenue	156 Street	160 Street	Collector	2	2	2	2	1	N	N
92 Avenue	156 Street	155 Street	Local	2	2	2	2	1	N	N
92A Avenue	156 Street	155 Street	Local	2	2	2	2	6	N	N
93A Avenue	156 Street	157 Street	Local	2	2	2	2	6	N	N
93A Avenue	156 Street	155 Street	Local	2	2	2	2	6	N	N
95 Avenue	156 Street	157 Street	Collector	2	4	3	2	1	N	Y
95 Avenue	156 Street	155 Street	Collector	2	4	3	2	1	N	Y

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
96 Avenue	156 Street	157 Street	Local	2	2	2	2	6	N	N
96 Avenue	156 Street	155 Street	Local	2	2	2	2	6	N	N
97 Avenue	156 Street	157 Street	Local	2	2	2	2	6	N	N
97 Avenue	156 Street	155 Street	Local	2	2	2	2	6	N	N
98 Avenue	156 Street	157 Street	Local	2	2	2	2	6	N	N
98 Avenue	156 Street	155 Street	Local	2	2	2	2	6	N	N
99 Avenue (West)	156 Street	157 Street	Local	2	2	2	2	6	N	N
99 Avenue (East)	156 Street	155 Street	Local	2	2	2	2	6	N	N
156 Street	**99 Avenue**	**Stony Plain Road**	**Arterial**	**3**	**4**	**2**	**2**	**1**	**N**	**N**
100 Avenue	156 Street	158 Street	Arterial	2	4	4	3	1	N	N
100 Avenue	156 Street	155 Street	Arterial	2	3	3	2	1	N	N
100A Avenue	Jasper Place Transit Centre	158 Street	Collector	2	2	2	2	1	N	Y
Stony Plain Road	156 Street	157 Street	Arterial	3	4	2	2	1	N	Y
156 Street	Stony Plain Road	102 Avenue	Arterial	3	4	2	2	1	N	Y
Stony Plain Road	**156 Street**	**149 Street**	**Arterial**	**3**	**4**	**2**	**2**	**1**	**N**	**N**
155 Street	Stony Plain Road	102 Avenue	Local	4	2	2	0	6	N	N
155 Street	Stony Plain Road	100 Avenue	Local	4	2	2	0	6	N	N
154 Street	Stony Plain Road	102 Avenue	Local	4	2	2	0	6	N	N
154 Street	Stony Plain Road	100 Avenue	Local	4	2	2	0	6	N	N
153 Street	Stony Plain Road	102 Avenue	Local	4	2	2	0	6	N	N
153 Street	Stony Plain Road	100 Avenue	Local	4	2	2	0	6	N	N
152 Street	Stony Plain Road	102 Avenue	Local	4	1	1	0	6	N	N
152 Street	Stony Plain Road	100 Avenue	Local	4	1	1	0	6	N	N
151 Street	Stony Plain Road	102 Avenue	Local	4	2	2	0	6	N	N
151 Street	Stony Plain Road	100 Avenue	Local	4	2	2	2	6	N	N
150 Street	Stony Plain Road	102 Avenue	Local	4	2	2	0	6	N	N

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
Stony Plain Road	**149 Street**	**142 Street**	**Arterial**	**1**	**4**	**2**	**2**	**1**	**N**	**N**
149 Street	Stony Plain Road	102 Avenue	Arterial	3	4	4	2	1	N	Y
149 Street	Stony Plain Road	100 Avenue	Arterial	3	4	4	2	1	N	Y
148 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
147 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
146 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
145 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
145 Street	Stony Plain Road	101 Avenue	Local	2	2	2	0	6	N	N
144 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
144 Street	Stony Plain Road	101 Avenue	Local	2	2	2	0	6	N	N
143 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
143 Street	Stony Plain Road	101 Avenue	Local	2	2	2	0	6	N	N
Stony Plain Road	**142 Street**	**139 Street**	**Arterial**	**1**	**4**	**3**	**2**	**1**	**N**	**Y**
142 Street	Stony Plain Road	103 Avenue (West)	Arterial	1	5	4	2	1	N	Y
142 Street	Stony Plain Road	101A Avenue	Arterial	1	5	4	2	1	N	Y
102 Avenue (Service Road)	Stony Plain Road	138 Street	Local	2	2	2	2	6	N	N
102 Avenue	Stony Plain Road	138 Street	Local	1	4	4	2	1	N	Y
Stony Plain Road	**139 Street**	**Stony Plain Road Bridge West Approach**	**Arterial**	**1, 1A[4]**	**4**	**2**	**2**	**11**	**N**	**N**
139 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
138 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
138 Street	Stony Plain Road	102 Avenue	Local	2	2	2	0	6	N	N
137 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
137 Street	Stony Plain Road	102 Avenue	Local	2	2	2	0	6	N	N
136 Street	Stony Plain Road	104 Avenue	Collector	2	2	2	2	11	N	N
136 Street	Stony Plain Road	102 Avenue	Collector	2	2	2	2	11	N	N
135 Street	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
135 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
134 Street	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
134 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
133 Street	Stony Plain Road	105 Avenue	Local	2	2	2	0	6	N	N
133 Street	Stony Plain Road	103 Avenue	Local	2	2	2	0	6	N	N
132 Street	Stony Plain Road	105 Avenue	Local	2	2	2	0	6	N	N
132 Street	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
Glenora Crescent	Stony Plain Road	105 Avenue	Local	2	2	2	0	6	N	N
Glenora Crescent	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
Connaught Dr	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
Groat Road	107 Avenue	River Valley Road/Victoria Road	Arterial	3	4	4	4	7	N	Y
Stony Plain Road Bridge	**West Approach**	**East Approach**	**Arterial**	**1**	**4**	**2**	**2**	**8**	**N**	**N**
Stony Plain Road	**Stony Plain Road Bridge East Approach**	**124 Street**	**Arterial**	**1**	**4**	**2**	**2**	**1**	**N**	**N**
129 Street	Stony Plain Road	106 Avenue	Local	2	2	2	0	6	N	N
Woodbend Place	Stony Plain Road	Cul-de-Sac	Local	2	2	2	1	1	N	N
Glenora Pointe	Stony Plain Road	Cul-de-Sac	Local	2	2	2	1	1	N	N
128 Street	Stony Plain Road	106 Avenue	Local	2	2	2	0	6	N	N
Sylvancroft Lane	Stony Plain Road	Cul-de-Sac	Local	2	2	2	1	1	N	N
127 Street	Stony Plain Road	106 Avenue	Local	2	1	1	0	6	N	N
127 Street	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
126 Street	Stony Plain Road	105 Avenue	Local	2	2	2	0	6	N	N
126 Street	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
125 Street	Stony Plain Road	105 Avenue	Local	2	2	2	0	6	N	N
125 Street	Stony Plain Road	104 Avenue	Local	2	2	2	0	6	N	N
Stony Plain Road	**124 Street**	**121 Street**	**Arterial**	**1**	**4**	**2**	**2**	**1**	**N**	**N**

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
124 Street	Stony Plain Road	105 Avenue	Arterial	1	4	4	2	1	N	Y
124 Street	Stony Plain Road	104 Avenue	Arterial	1	4	4	2	1	N	Y
123 Street	Stony Plain Road	105 Avenue	Local	2	2	2	2	6	N	N
123 Street	Stony Plain Road	104 Avenue	Local	2	2	2	2	6	N	N
122 Street	Stony Plain Road	105 Avenue	Local	2	2	2	2	6	N	N
122 Street	Stony Plain Road	103 Avenue	Local	2	2	2	2	6	N	N
104 Avenue	**121 Street**	**116 Street**	**Arterial**	**1**	**4**	**4**	**2**	**1**	**N**	**N**
121 Street	Stony Plain Road	105 Avenue	Collector	2	2	2	2	1	N	N
121 Street	Stony Plain Road	103 Avenue	Collector	2	2	2	2	1	N	N
120 Street	104 Avenue	103 Avenue	Local	2	2	2	2	6	N	N
119 Street	104 Avenue	103 Avenue	Local	2	2	2	2	6	N	N
118 Street	104 Avenue	103 Avenue	Local	2	2	2	2	6	N	N
117 Street	104 Avenue	103 Avenue	Local	2	2	2	2	6	N	N
104 Avenue	**116 Street**	**107 Street**	**Arterial**	**3**	**6**	**4**	**4**	**1**	**Y**	**Y**
116 Street	104 Avenue	105 Avenue	Arterial	3	3	3	2	1	Y	Y
116 Street	104 Avenue	103 Avenue	Arterial	3	3	3	2	1	N	Y
112 Street	104 Avenue	103A Avenue	Collector	4	2	2	2	6	N	N
111 Street	104 Avenue	103 Avenue	Collector	4	2	2	2	6	N	N
110 Street	104 Avenue	Cul-de-Sac	Local	4	2	2	2	1	N	N
109 Street	104 Avenue	105 Avenue	Arterial	3	6	6	4	1	Y	Y
109 Street	104 Avenue	103 Avenue	Arterial	3	6	6	4	1	Y	Y
108 Street	104 Avenue	103 Avenue	Collector	4	2	2	2	6	N	N
104 Avenue	107 Street	106 Street	Arterial	3	6	4	4	1	Y	Y
104 Avenue	106 Street	104 Street	Arterial	3	5	4	4	1	Y	Y
105 Street	104 Avenue	105 Avenue	Arterial	3	4	4	2	1	N	N
107 Street	**104 Avenue**	**103 Avenue**	**Collector**	**2**	**4**	**1**	**1**	**3**	**N**	**N**
103 Avenue	107 Street	108 Street	Arterial	1	3	4	2	2	N	N
103 Avenue	107 Street	106 Street	Arterial	1	3	4	2	2	N	N

Roadway Section[1]	From	To	Roadway Classification	Roadway Category	Total Existing Number of Lanes[2]	Total Future Number of Lanes[2]	Minimum Lanes[2] to Remain Open	Allowed Period of Full Closure	Existing Truck Route	Existing Transit Routes[3]
107 Street	**103 Avenue**	**102 Avenue**	**Collector**	**2**	**4**	**2**	**2**	**3**	**N**	**N**
102 Avenue	107 Street	108 Street	Arterial	1	2	3	2	6	N	N
107 Street	102 Avenue	Jasper Avenue	Collector	2	4	4	2	6	N	N
102 Avenue	**107 Street**	**105 Street**	**Arterial**	**1**	**2**	**1**	**0**	**5**	**N**	**N**
106 Street	102 Avenue	Jasper Avenue	Arterial	1	2	3	2	2	N	N
106 Street	102 Avenue	104 Avenue	Arterial	1	2	3	2	2	N	N
102 Avenue	**105 Street**	**103 Street**	**Arterial**	**1**	**2**	**1**	**0**	**5**	**N**	**N**
105 Street	102 Avenue	Jasper Avenue	Arterial	1	3	4	2	2	N	N
105 Street	102 Avenue	104 Avenue	Arterial	1	3	4	2	2	N	N
104 Street	102 Avenue	Jasper Avenue	Collector	2	2	4	2	2	N	N
104 Street	102 Avenue	103 Avenue	Collector	2	2	4	2	2	N	N
102 Avenue	**103 Street**	**102 Street**	**Arterial**	**3**	**2**	**1**	**0**	**5**	**N**	**N**
103 Street	102 Avenue	Jasper Avenue	Collector	4	2	4	2	2	N	N
103 Street	102 Avenue	103 Avenue	Collector	4	2	4	2	2	N	N
102 Street	102 Avenue	Jasper Avenue	Collector	4	4	4	2	3	N	N
102 Avenue	**102 Street**	**100 Street**	**Arterial**	**3**	**1**	**1**	**1**	**1**	**N**	**N**
51 Avenue	54 Street	75 Street	Collector	4	2	2	2	6	N	N

Notes:

[1] Rows in bold reflect the main alignment of the route.
[2] Through Lanes
[3] Existing transit routes have been identified in accordance with the *City of Edmonton Transit Strategy Bus Network Redesign*, which will be implemented by April 25, 2021.
[4] Stony Plain Road between 139 Street and Stony Plain Road Bridge west approach is Roadway Category 1 during the Stony Plain Road Bridge Closure, and reverts to a Roadway Category 1A after the Stony Plain Road Bridge Closure has been lifted.

1-4.2.6 Traffic Accommodation Request (TAR)

A. Prepare and submit a traffic accommodation request, (the "***Traffic Accommodation Request***", or "***TAR***") for each Transportation Closure, which shall:

1. be in the form set-out in Appendix 5-1B *[Traffic Accommodation Request Form]* to this Schedule;

2. have all fields on the form completed;

3. be assigned a unique and sequential number; and

4. include an attached TAP except within the TUC when it shall include an attached TAS.

1-4.2.7 Traffic Accommodation Plan (TAP)

A. Prepare and submit a traffic accommodation plan, (the "***Traffic Accommodation Plan***", or "***TAP***") for each Transportation Closure, except within the TUC, which shall:

1. comply with the minimum safety measures identified in the City of Edmonton *Procedures for On-Street Construction Safety*;

2. include all traffic control measures required for safe and efficient Transportation Management as determined through an Hazard Analysis associated with the Transportation Closure;

3. be prepared in the form of drawing(s), with related notes, and shall include:

    a. type of Transportation Closure including dates and timings for deployment(s) and removal(s) of the traffic accommodation measures and any periods of inactivity;

    b. layout and locations of the temporary signage and any other traffic accommodation measures which shall be used for the Transportation Closure;

    c. layout and locations of temporary bus stop placement including length of pull-out/in taper and curbside surfacing details;

    d. locations and proposed content of the information and alternate route guidance signs to be deployed during the public notification period in accordance with Table 1-4.2.11 *[City Review and Public Notification Period]* of this Schedule and in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement]*;

    e. limits of the area that is to be protected by the Transportation Closure;

    f. details of measures to guide pedestrians and cyclists through the Transportation Closure;

    g. details of the measures to be implemented to preserve existing accesses in accordance with Section 1-3.1.1 *[Coordination and Access]* of this Schedule;

    h. detailed layouts which follow the 'Examples of Typical Worksite Traffic Control Set-Ups' contained in the City's "*Procedures for On-Street Construction Safety*" to the extent applicable;

    i. details of emergency vehicle access routes to, through or around each Site;

    j. street lighting modifications in accordance with the *TAC Guide for Design of Roadways Lighting*;

k. locations of Roadway and traffic signal modifications outside the City Lands to accommodate traffic detours and bus rerouting;

l. details of the construction activities requiring the Transportation Closure; and

m. shall be signed and sealed by a Professional Engineer or Professional Technologist (Eng.).

4. identify any other information that is necessary to assist in describing the planned traffic accommodation measures;

5. identify a Project Co person(s) responsible to assist Emergency Services personnel responding to an incident within the Site; and

6. include traffic analysis and temporary signal timing plans for temporary closures.

B. TAP drawings shall be prepared with a maximum scale of 1:1500, be submitted in landscape format on "11x17" pages, each provided with a drawing number and a title that includes the location and type of Transportation Closure.

C. Where the City's *Procedure for On Street Construction Safety* includes examples of typical traffic accommodation set-ups that are applicable to Transportation Closures, such set-ups shall be used.

1-4.2.8 Traffic Accommodation Strategy

A. Prepare and submit a traffic accommodation strategy, (the "***Traffic Accommodation Strategy***", or "***TAS***") for each Transportation Closure within the TUC, which shall comply with the requirements of Alberta Transportation *Traffic Accommodation in Work Zones.*

1-4.2.9 Traffic Accommodation Closure Types

A. Traffic accommodation Lane Closures shall be defined as a Major Transit Route Closure, a Major Lane Closure or a Minor Lane Closure, where:

1. a Major Transit Route Closure means:

a. a Full Closure;

b. a reduction of the number of through traffic lanes to a single lane in a single direction; or

c. implementation of a restriction on turning movements used by transit vehicles,

within a Roadway section identified in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]* as being an existing transit route, or within a Roadway section which forms part of a detour for such existing transit route.

2. a Major Lane Closure means:

a. temporary Lane Closures on Roadways that are classified in Table 1-4.2.5 *[Roadway Section Restrictions and Roadway Categories]* as collector, arterial or freeway, where one or more lanes in either direction is closed during peak hours as identified in Section 1-4.2.2 *[Roadway Restriction Construction Requirements]* of this Schedule;

b. total closure of all lanes travelling in one direction or Full Closure of any Roadways that are classified as collector, arterial or freeway including traffic splits; or

c. a Lane Closure that exceeds 3 days in duration on any Roadways that are classified as collector, arterial or freeway; and

3. a Minor Lane Closure means any closure of a Roadway, Sidewalk or SUP that is not a Major Lane Closure.

1-4.2.10 Transit Notification Period

A. Where a Transportation Closure is a Major Transit Route Closure, the applicable TAR shall be submitted a minimum of 150 days in advance of the proposed start date of the applicable Transportation Closure.

1-4.2.11 City Review and Public Notification Period

A. All TARs shall be submitted to the City, except that the Review Period shall be as set out in Table 1-4.2.11 *[City Review and Public Notification Period]* and not the 15 Business Days specified throughout Section 4.2 *[Time for City Review]* of Schedule 2 *[Submittal Review Procedure]*.

B. After a TAR has been Accepted by the City, provide public notification in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement]* by posting information and alternate route guide signs at strategic locations on the approach to the related Transportation Closure(s). Information and alternate route guidance signs shall be placed in advance of the Transportation Closure such that the public has adequate opportunity to divert prior to reaching the Transportation Closure(s).

C. The public notification shall be posted in advance of implementing the closures for at least the time period specified in Table 1-4.2.11 *[City Review and Public Notification Period]* and shall remain in place for the duration of the Transportation Closure.

Table 1-4.2.11 City Review and Public Notification Period

Closure Type	City Review Period	Public Notification Period
Major Transit Route Closure (outside the TUC)	20 Business Days	20 Business Days
Major Transit Route Closure (within the TUC)	25 Business Days	20 Business Days
Major Lane Closure (outside the TUC)	15 Business Days	20 Business Days
Major Lane Closure (within the TUC)	25 Business Days	20 Business Days
Minor Lane Closure (outside the TUC)	5 Business Days	5 Business Days
Minor Lane Closure (within the TUC)	25 Business Days	20 Business Days

D. Where PCMSs are used for information and alternate route guide signs, all messages shall be current and applicable to the prevailing conditions.

1-4.3 TRAIL CLOSURE

1-4.3.1 Trail Access to MacKinnon Ravine Pedestrian Bridge During Construction

A. Provide and submit trail detour routing for when bridge is closed.

B. Provide a trail detour and information signage plan. Signage shall include photos of detour route, project start and end dates, scope, and contact information, and would be required at all connecting trail heads, in the ravine and above bank sidewalks.

C. Bridge closure is allowed for duration no longer than 365 calendar days.

SECTION 1-5 BUILDING AND UTILITY SETTLEMENT

1-5.1 GENERAL

A. Perform a building and utility settlement study to identify Building Structures, surface facilities and subsurface Utilities that are at risk of movement, distortion or damage as a result of the Construction. Prepare and submit to the City a report describing the outcome of this study, (the "***Building and Utility Settlement Study Report***") at least 60 days prior to commencement of any excavation works, including:

1. the method of assessment for determining Building Structures, Surface Facilities and subsurface Utilities that are at risk of movement, distortion or damage as a result of the Construction;

2. the address and description of each Building Structure, Surface Facility and subsurface Utility that is at risk of movement, distortion or damage as a result of the Construction;

3. an assessment of the impact of each Building Structure, Surface Facility and subsurface Utility;

4. mitigating measures to be incorporated into the construction methodology, including underpinning, ground improvement, Utility relocation, construction equipment size and output restrictions, to avoid damage, subject to compliance with any permitting or other Project Approval requirements; and

5. details of any instrumentation to be used to monitor the movement or distortion and associated monitoring plan.

SECTION 1-6 PRE-CONSTRUCTION ASSET CONDITION SURVEY

1-6.1 GENERAL

A. A pre-construction condition baseline survey of the properties and assets along the LRT Corridor is being completed by the City. The extent and scope of the survey, along with a summary of the observed conditions, have been included in the Disclosed Data.

B. To the extent that Project Co conducts additional pre or post construction condition surveys or other observations, copies of all records, identified by physical address or location, shall be provided to the City within 30 days of completion of the applicable survey or observation, including:

1. photographs, video, measurements and narratives; and

2. detailed descriptions of any observed variances from the conditions documented in the pre-construction condition baseline survey included in the Disclosed Data; and

C. Provide the City with at least 10 days' notice of such surveys. No additional survey shall be conducted without a City representative being present.

SECTION 1-7 DECONSTRUCTION

1-7.1 GENERAL

A. This Section 1.7 [*Deconstruction*] sets out the requirements for handling, salvage, storage and disposal of existing material that needs to be removed from the Lands to facilitate Construction of the Infrastructure.

B. Except as provided in Section 1-7.4 *[Elements to be Deconstructed or Removed from the Lands]* of this Schedule, ensure that no buildings, structures or components are partially or wholly deconstructed, demolished, renovated, removed, relocated or otherwise damaged in connection with, or as a result of, the performance of the Construction.

C. All deconstructed waste materials shall be removed from the Lands and disposed of at appropriate provincially licensed facilities.

1-7.2 MATERIAL STORAGE, HANDLING AND DISPOSAL

A. Store materials and equipment to be reused, recycled or salvaged:

1. in secured areas;

2. in a neat and tidy condition; and

3. only in non-residential areas.

B. Divert at least 90% of all deconstructed materials by weight from landfills in accordance with Section 15.5 *[Hazardous Substances and Waste]* of Schedule 10 [*Environmental Performance Requirements]*.

C. All Construction waste management and disposal shall comply with the requirements of Schedule 10 [*Environmental Performance Requirements]*.

D. Notwithstanding Schedule 10 [*Environmental Performance Requirements*], excavated material from the LRT Corridor that is left behind or used in Construction shall to be proven to be safe to be left behind or used in Construction.

1-7.3 SALVAGE REQUIREMENTS

A. Subject to Section 1-7.5 *[Deconstruction Requirements]* of this Schedule, Project Co shall have all salvage rights and entitlement to proceeds from the sale of deconstructed materials.

B. Project Co will be responsible for communicating salvage opportunities that could be of interest to Stakeholders in accordance with Section 3.2 *[Design and Construction Communication Services]* of Schedule 12 *[Communications and Engagement].*

C. Except as set out in Section 4-4.11.1 of this Schedule, the use of recycled asphalt into the Infrastructure is permitted provided that:

1. the material complies with the requirements of the Valley Line West LRT Roadways Design and Construction Standards;

2. the material meets the design material properties and serviceability requirements of the element of Infrastructure they are incorporated into;

3. the material is free of Hazardous Substances, contaminants and other deleterious substances; and

4. documentation is maintained, and sealed by a Professional Engineer, for the deconstructed material used in the Infrastructure, including the following:

    a. a description of the material to be recycled or re-used;

    b. the material properties relevant to the designated application;

    c. the material properties required by the designated application;

    d. verification that the material is free of Hazardous Substances, contaminants and other deleterious substances; and

    e. a recommendation for use of the material in the designated application.

1-7.4 ELEMENTS TO BE DECONSTRUCTED AND REMOVED FROM THE LANDS

A. Deconstruct and remove from the Lands the following elements:

1. the Existing Stony Plain Road Bridge;

2. the existing WEM Transit Centre;

3. all other elements listed below, to the extent that they directly encumber the Construction and are not essential to continued traffic operation or public safety:

    a. City Recoverable Items which have not been recovered by the City within the timeframe described in Section 1-7.5.2 [City Recoverable Items] of this Schedule;

    b. Roadway infrastructure in accordance with Section 1-7.5.3 [Roadway Infrastructure] of this Schedule;

    c. Utility poles;

    d. landscaping features in accordance with Section 2-14 [Landscape Architecture] of this Schedule;

    e. decommissioned Utility remnants in accordance with Section 3-6.2 [Access to and Protection, Abandonment and Removal of UP Infrastructure] of this Schedule;

    f. Traffic Signal Equipment and street lighting as described in Section 1-7.5.4 [Traffic Signal Control Structures and Devices and Street Lighting] of this Schedule; and

    g. any other structure, facility or component specified to be removed, restored or relocated elsewhere in this Agreement.

1-7.5 DECONSTRUCTION REQUIREMENTS

1-7.5.1 General

A. For Sites on which Deconstruction Work is required:

1. remove all Utilities in accordance with Section 3-6.2 *[Access to and Protection, Abandonment and Removal of UP Infrastructure]* of this Schedule;

2. remove

    a. the Existing Stony Plain Road Bridge superstructure and the supporting substructure. The existing piles shall be abandoned with top ends cut-off if conflicting with new Stony Plain

Road Bridge. Existing retaining wall and sidewalk on the west side (along the Groat Road SUP) to remain; and

b. all other foundations and substructures, except for deep foundation components, as defined in Part 4 of the NBCAE, which shall be removed to a minimum depth of 1.5 meters below the nominal adjacent existing grade, or such greater depth as required for Construction of the Infrastructure. The size, location and top surface elevation of each foundation and footing remnant shall be surveyed and shown on the Record Drawings; and

3. backfill all excavations created by the removal of substructures and foundations with engineered fill material suitably compacted to prevent settlement.

B. For the Existing Stony Plain Road Bridge, prepare and submit to the City a report signed and sealed by a Professional Engineer, containing the following information:

1. a legal site plan;

2. access to work area;

3. copies of all applicable Project Approvals and other authorizations and approvals required for performance of the applicable Deconstruction Work;

4. original structure position and site characteristics;

5. Utility locations, identified as capped or abandoned;

6. temporary works and support structures including stabilizing details and measures;

7. type and capacity of equipment;

8. sequence of work including positioning of cranes;

9. position of cranes relative to substructure elements such as abutment backwalls, with details of load distribution of wheels and outriggers;

10. lifting devices and lifting points showing lifting forces;

11. demolition sequence;

12. waste / disposal manifests;

13. temporary supporting structures removal;

14. identification of remaining features and aspects;

15. remnant deep foundation survey data;

16. representative photographs of the site before and after deconstruction; and

17. a record of any other known data that would affect future development on the site.

1-7.5.2 City Recoverable Items

A. The City may wish to recover or salvage the following existing items:

1. bus stop materials including shelters, signs, ash containers, benches, waste receptacles, and waste and recycling receptacles, including these items at and within West Edmonton Mall Transit Centre (collectively "***Bus Stop Materials***");

2. removable and replaceable components including mini barriers, bollards, jersey barriers, bicycle racks, benches, bistro tables, cluster seating, waste receptacles, waste and recycling receptacles, pre-cast parking curbs, variable message signs, fixed signs, newspaper boxes and similar components (collectively "***Removable and Replaceable Components***"); and

3. mail boxes.

B. Notify the City in writing, not less than 15 Business Days and not more than 25 Business Days, prior to deconstructing or removing any Bus Stop Materials or Removable and Replaceable Components. Project Co shall not include in the Construction Schedule or otherwise plan to deconstruct or remove any:

1. Bus Stop Materials at more than five (5) bus stops in any given week; and

2. Removable and Replaceable Components in any week in a volume of items greater than what the City can reasonably remove within a week.

C. Except to the extent the City removes applicable Bus Stop Materials or Removable and Replaceable Components within 15 Business Days after receipt of the written notice in Section 1-7.5.2 *[City Recoverable Items]* of this Schedule, Project Co shall deconstruct and remove the applicable Bus Stop Materials or Removable and Replaceable Components within 25 Business Days of the written notice in Section 1-7.5.2 *[City Recoverable Items]* of this Schedule in accordance with Section 1-7.2 *[Salvaged Items]*.

D. Notify the City in writing to request removal of mail boxes. Notice shall be not less than 45 days and not more than 55 days prior to the date that removal of a mail box is necessary to accommodate the related Construction.

1-7.5.3 Roadway Infrastructure

A. Where a new Roadway abuts areas of existing Roadway, remove the existing concrete and asphalt so as to create a straight, clean, vertical edge through the full depth of the pavement structure.

1-7.5.4 Special Items

1-7.5.4.1 Existing WEM Transit Centre

A. Deconstruct and recycle the existing WEM Transit Centre building materials, including the fence along the south edge of the existing south passenger loading area, and remove the applicable Bus Stop Materials as described under Section 1-7.5.2 *[City Recoverable Items].*

B. Carry out the following obligations with regards to the two (2) existing pieces of Public Art on the masonry walls of the existing WEM Transit Centre, as shown in Figure 1-7.5.4.1 [*Thing 1 & Thing 2*], and any associated plaques and mounting hardware:

Figure 1-7.5.4.1: Thing 1 & Thing 2

1. Assess the Public Art pieces on the day of closure of the existing WEM Transit Centre, jointly with the City, to identify any existing damage to materials or components:

    a. Provide the City with at least twenty (20) Business Days' notice before the day of the assessment.

    b. Provide the City with a report including:

        i. a log of any existing damage to materials and components, complete with photos of the damage, as determined during the joint survey after the day of the assessment and at least ten (10) Business Days before the removal; and

        ii. comprehensive photos of the entire Public Art pieces.

2. Remove the Public Art pieces such that the materials and components are not damaged during the removal:

    a. Provide the City with at least ten (10) Business Days' notice before the day of the removal.

    b. Coordinate removal time with the City; a City Person will be on-site during the disassembly of the materials and components to assist Project Co in identifying any latent or hidden damage that is observed.

3. Transport the Public Art pieces to the Edmonton Arts Council storage facility located at 11470 156 Street such that the materials and components are not damaged during the transportation:

    a. Provide to the City with at least ten (10) Business Days' notice before the day of the transportation.

    b. Coordinate delivery time with the City; a City Person will be at the storage facility to receive the materials and components.

1-7.5.4.2 Art Collection at Misericordia Hospital

A. Carry out the obligations of this Section 1-7.5.4.2 [*Art Collection at Misericordia Hospital*] with regards to the existing piece of welded steel art located southwest of the Misericordia Hospital helipad, entitled “Squashed Freemason”, and any associated plaques, with the following details:

1. Catalogue Number: 1995.095.001
2. Artist Name: Peter Hide
3. Art Name: Squashed Freemason
4. Medium: welded steel
5. Dimensions: 274.3 x 121.9 x 91.4 cm (108 x 48 x 36 in.)
6. Weight: 680 kg to 816 kg (1500 lbs. to 1800 lbs.)

B. Appraise and assess the art piece by making contact with the Alberta Foundation of the Arts (AFA) a minimum of 30 days prior to removal. AFA will do a condition report on the art piece prior to the move and provide the report and detailed photos of existing condition issues.

C. Remove the art piece such that the materials and components are not damaged during the removal. An AFA member shall also be present on the day of removal and move.

D. Transport the art piece with a transport company experienced in the movement of large-scale fine art pieces. Recommended transportation sources:

Encore Crane, Trucking & Transport Ltd.
12011 - 32 Street, N. E. Edmonton, Alberta, T6S 1G8
Contact: Patrick Lucas
Journeyman Operator / Project Manager
(780) 463-5057 Toll Free (877) 463-5057
www.encoretrucking.ca

or;

Art of The Move
207 301 Saskatchewan Avenue
Spruce Grove AB T7X 3A1
Contact: Fred Nash
(780) 962-4435

E. Transport the art piece to the AFA storage facility located at Cityview Business Park, Building 7, 6498 Roper Road Edmonton AB T6B 3P9. The art piece shall be offloaded and stabilized by Project Co on a palette provided by the AFA at the storage facility.

1. AFA reserves the right to transport and install the art piece to a new location without assistance from Project Co.

F. Removal and transportation of the art piece shall occur between April and September.

G. Project Co shall involve the AFA staff during each stage of the art piece removal and transportation and provide a minimum of thirty (30) days’ notice. AFA will involve the artist as required. Budget for the artist’s consultation based on CARFAC fees: http://carcc.ca/en/fee_schedule_2019_professional

H. AFA Contact:

1. Gail Lint, Art Collections Consultant, (780) 415-0253.

1-7.5.5 Traffic Signal Control Structures and Devices and Street Lighting

A. Maintain continuous safe operations for vehicular, pedestrian, and bicycle traffic.

B. No street light shall be deconstructed or otherwise removed from service until temporary or permanent lighting measures meeting the requirements of Section 2-6.2 *[Right of Way Lighting]* of this Schedule are available in place of the street light(s) being deconstructed or removed. Permanent lighting so provided shall be maintained during the Construction Period in accordance with Section 1-3.5 *[Maintenance During Construction]* of this Schedule.

C. No Traffic Signal Equipment shall be deconstructed or otherwise removed from service until the Transportation Accommodation measures described in the Accepted TAP have been implemented.

D. Where any of the following existing Traffic Signal Equipment are removed as part of the Construction they shall be protected from damage and delivered to the City (with unloading device), within two (2) weeks of removal, at the Valley Line West LRT yard on 28 Avenue west of 92 Street (hours of operation are Monday to Friday 9:00 am to 3:00 pm, except statutory holidays):

1. cantilever structures;

2. poles, arms, and davit extensions;

3. Traffic Controllers, cabinets and video detection equipment;

4. luminaires; and

5. overhead signs.

E. Remove and protect from damage existing street lighting, including roadway lighting and pedestrian lighting, and deliver to the City (with unloading devices) within two (2) weeks of removal, at the Valley Line West LRT yard on 28 Avenue west of 92 Street (hours of operation are Monday to Friday 9:00 am to 3:00 pm, except statutory holidays).

F. Notwithstanding Section 1-7.5.5.E *[Traffic Signal Control Structures and Devices and Street Lighting]*, remove the four (4) existing pedestrian light poles at the corners of the Stony Plain Road and 124 Street intersection and safely store such items to prevent any loss. Reinstall pedestrian light poles in accordance with Section 3-7.3.4 *[124 Street/Stony Plain Road]* of this Schedule.

G. Carry out the following obligations with regards to the four (4) existing pedestrian light poles identified for removal and reinstatement in Section 1-7.5.5.F *[Traffic Signal Control Structures and Devices and Street Lighting]* of this Schedule:

1. assess the existing pedestrian light poles sixty (60) Business Days' prior to planned removal, jointly with the City, to identify any existing damage to materials or components:

    a. provide the City with at least twenty (20) Business Days' notice before the day of the assessment.

    b. provide the City with a report including

        i. a log of any existing damage to materials and components, complete with photos of the damage, as determined during the joint survey after the day of the assessment and at least ten (10) Business Days before the removal; and

        ii. comprehensive photos of each pedestrian light pole; and

c. remove and store the pedestrian light poles such that the materials and components are not damaged during the removal or storage.

1-7.5.6 Jasper Place Opportunity Area Furnishings

A. All of the following existing furnishings from the Jasper Place Opportunity Area shall be removed and safely stored to prevent any loss prior to reinstalling these items at the locations indicated on the drawings in Appendix 5-2B *[Jasper Place Opportunity Area Streetscape Drawings]* of this Schedule:

1. newspaper corrals;

2. decorative screens;

3. posting kiosks;

4. parkette trellises; and

5. illuminated concrete street name monuments or “street identifiers”.

B. Carry out the following obligations with regards to the furnishings identified for removal and reinstatement in Section 1-7.5.6.A *[Jasper Place Opportunity Area Furnishings]* of this Schedule:

1. assess the furnishings sixty (60) Business Days’ prior to planned removal, jointly with the City, to identify any existing damage to materials or components:

    a. provide the City with at least twenty (20) Business Days’ notice before the day of the assessment.

    b. provide the City with a report including

        i. a log of any existing damage to materials and components, complete with photos of the damage, as determined during the joint survey after the day of the assessment and at least ten (10) Business Days before the removal; and

        ii. comprehensive photos of each furnishing; and

    c. remove and store the furnishings such that the materials and components are not damaged during the removal or storage.

SECTION 1-8 PROJECT IDENTIFICATION, ACCESS AND MISCELLANEOUS REQUIREMENTS

1-8.1 PROJECT IDENTIFICATION SIGNS

A. Provide 18 Project identification signs.

1. Each Project identification sign shall:

a. be nominally a minimum of 8 feet x 8 feet in size, with the bottom of the sign located a minimum of 3.5 feet above grade;

b. be constructed of solid materials that can withstand 80 km/h winds without affecting the readability of the signs;

c. be printed in full colour; and

d. comply with the signage requirements in Schedule 12 [*Communications and Engagement*] and the City Public Communication Design Guidelines.

2. Any damage to the signs, including warping, delamination and rust staining, shall be repaired within 5 Business Days at Project Co's cost.

3. Specific locations, content and design requirements will be provided by the City within 60 Business Days after the Effective Date. All Project identification signs shall be supplied, installed and maintained at the required locations within 20 Business Days after receipt of location and content requirements or at a later date as instructed by the City.

B. Provide 18 provincial funding signs of substantially the same dimensions and construction as the Project identification signs described in Section 1-8.1A *[Project Identification Signs]*. Specific locations and content requirements will be provided by the City within 60 Business Days after the Effective Date. All provincial funding signs shall be supplied, installed and maintained at the required locations within 20 Business Days after receipt of location and content requirements or at a later date as instructed by the City.

C. Provide 18 federal signs of substantially the same dimensions and construction as the Project identification signs described in Section 1-8.1A *[Project Identification Signs]*. Specific locations and content requirements will be provided by the City within 60 Business Days after the Effective Date. All federal funding signs shall be supplied, installed and maintained at the required locations within 20 Business Days after receipt of location and content requirements or at a later date as instructed by the City.

D. Project Co will inspect the signage on a monthly basis to ensure it is well-maintained and free of damage, and that any content on the signage is up-to-date.

1-8.2 VEHICLE ACCESS AND PARKING

1-8.2.1 General

A. Ensure that only designated points of access and access routes are used for movement of workers, equipment and delivery of materials.

1-8.2.2 Haul Routes

A. Tracking or spillage on public roads shall be cleaned up within four (4) hours.

1-8.2.3 Construction Parking

A. Workers shall not be permitted to park on streets, including any on-street parking or in-service roads, or in any public parking lots.

B. Parking shall not occur within the drip line of any trees.

1-8.3 TEMPORARY BARRIERS AND ENCLOSURES

A. Where the Construction may constitute a hazard to the public, work shall not commence on the Construction until a temporary fence, hoarding, barricade or covered way is erected between the Site and the adjacent public areas.

B. All temporary fencing, hoarding, barricades or covered ways shall comply with Part 8 of the NBCAE at all times during the Term, shall be consistent with the features in the Valley Line West LRT Design Guide, and shall adhere to Section 2.1(h) *[General Obligations]* of Schedule 12 *[Communications and Engagement]*.

C. Temporary fencing in the Lands shall be paneled chain link construction fence.

1-8.4 PROJECT CLEANLINESS

1-8.4.1 General

A. Maintain Sites in a tidy condition, free from accumulation of waste products and debris.

B. Provide containers on Site for collection of waste products and debris.

C. Burning of waste products and debris is not permitted.

D. Clear and remove snow and ice from all accesses to the Sites in accordance with the City's Snow and Ice Control Policy, C409 and the Community Standards Bylaw #14600.

E. Depositing of Construction debris and waste products on Roadways, sidewalks or any other areas is prohibited.

1-8.4.2 Cleaning of Sidewalks

A. Remove and clear all snow, ice, dirt, debris and other obstruction, formed or deposited on all public sidewalks intended to remain open within each Site, within 48 hours of the time when such snow, ice, dirt or other obstruction was formed or deposited thereon.

1-8.4.3 Final Cleaning

A. Prior to Construction Completion:

1. remove surplus products, and other tools, construction machinery and equipment from the Lands;

2. broom clean and pressure wash exterior walks, steps and all other hard surfaces of Stops, Stations and other Structures including interior of Stations and other Structures;

3. remove dirt and other disfiguration from exterior surfaces;

4. remove any snow and ice from the Trackways, Stops, Stations and other Structures;

5. remove any protective mulch placed within dripline of trees; and

6. clean and polish glass and bright surfaces.

1-8.5 WILDFIRES

A. Implement precautions to prevent ignition sources from Construction activities causing wildfires including:

1. firefighting equipment shall be available at locations used to store flammable materials including fuels, lubricants and other petroleum products; and

2. designated smoking areas shall be established away from any fuel sources including those where flammable materials are stored, and away from any vegetated areas.

1-8.6 HAZARD TREES

A. Remove all trees that are deemed a fall hazard by the Arborist prior to commencement of further Construction activity in any areas at risk from the fall hazard. Trees shall be removed from:

1. within the Lands in accordance with Section 2-14.15 *[Tree Retention, Relocation, Removal and Protection]*; and

2. outside the Lands in accordance with Section 2-14.15 *[Tree Retention, Relocation, Removal and Protection]* and in accordance with Section 4.15 *[Community Improvement Program]* of the Agreement.

SECTION 1-9 SPARE PARTS

1-9.1 SUPPLY OF SPARE PARTS

A. Project Co shall supply Spare Parts to the City for all systems and sub-systems provided as part of the Project in accordance with the Spare Parts List and as agreed by the City.

B. Spare Parts shall be:

1. new, unused items;

2. identical to the items placed into service; and

3. provided 3 months in advance of Construction Completion.

C. Make suitable supply arrangements to ensure that ordering, shipping and handling and storage charges are minimized while taking advantage of volume pricing and ensuring equipment compatibility.

D. As set out in Section 5.6.6 *[Spare Parts]* of Schedule 4 *[Design and Construction Protocols]*, the Spare Parts List shall include, at a minimum, the quantity of Spare Parts listed in Table 1-9 [*Minimum Required Spare Parts*].

Table 1-9 Minimum Required Spare Parts

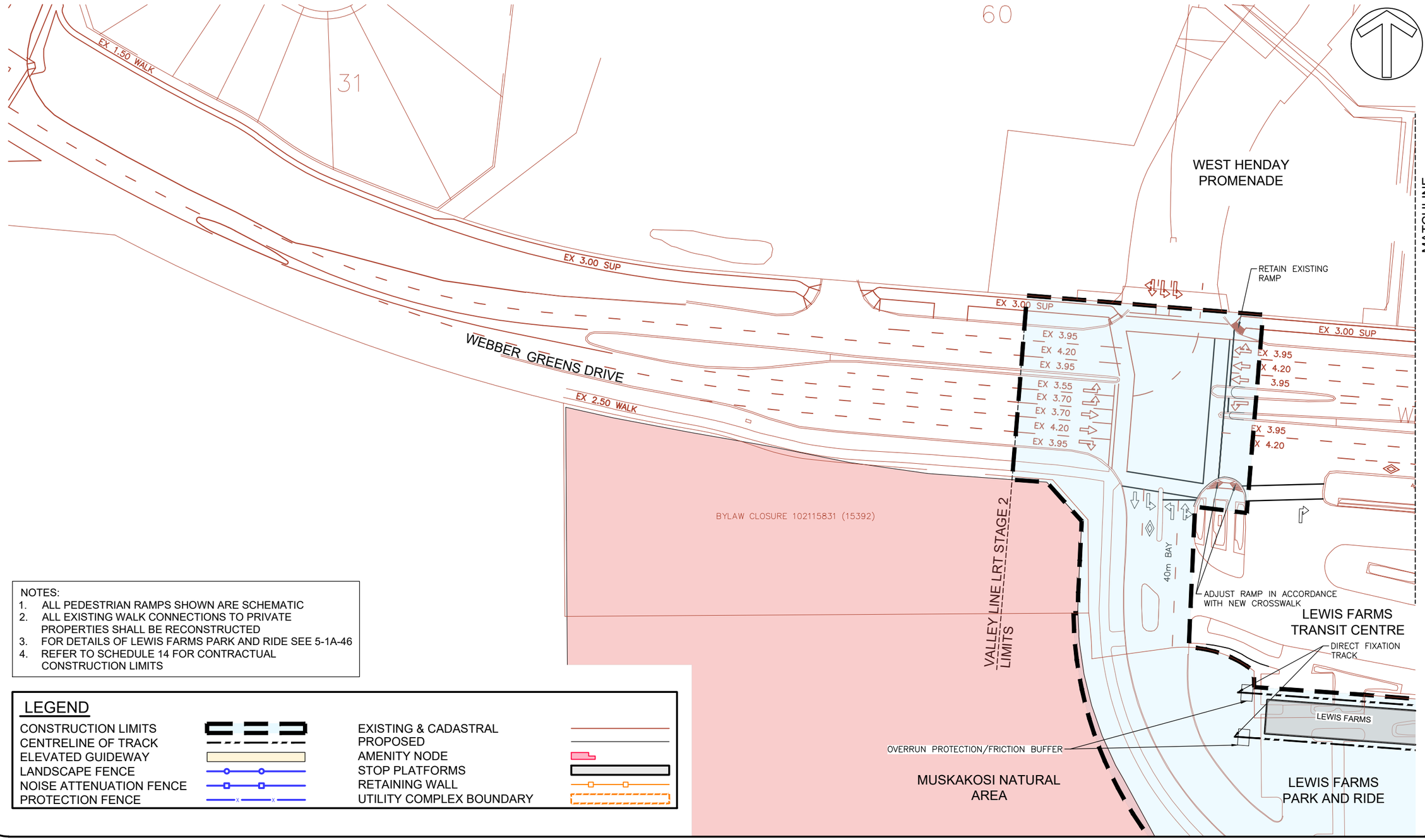
Item	Quantity
Train Control System	
Power operated switch machine;	2 of each type
Block signal (each lamp arrangement);	2 of each type
Switch position indicator;	2
Vital Controller (unit) and Field replicable component parts	2 of each type
Train detection device, including Wheel counter, Mass detector and Track circuit	2 of each
Train Routing and Priority System	
Wayside	
Wayside coupling coil, FRED-1062	2
Platform Detection Loop, FRED-1070	2
Loop Adjustment module, FRED-1072	2
Frequency Decoder Unit, FRED-1030	2
Wayside Evaluation Unit	2
Networking, CCTV, Radio, Telephone and Security Systems	
Backbone fibre cable	2 km roll
Patch cables and connectors	200 m
Connectors	50
Switches	
Core Switches	2
Distribution Switches	2
Access Switches	5
Power packs for switches	2
10G SFP	4
1G SFP	8
PA/VMS system	

Item		Quantity
	PA Amplifiers	2
	Speakers (Ceiling, surface mount, horn)	5 of each type
	Variable message sign	2
	Microphones	2 of each type
	Telephone system	
	Administration phone	5
	Public information phone	5
	Emergency Alarm Station phone	5
	Blue light telephone	5
	Public washroom access phone	5
	Elevator emergency phone	5
	Entrance access phone.	5
	CCTV cameras	
	Fixed	10% of total
	PTZ	10% of total
	Radios (Note: Final quantities to be based on Radio study	
	Voice radios	10
	Data radios for OMF and LFSF yards.	4
	Security devices	
	Motion detectors	10
	Access card readers	10
	Door sensors	10
Overhead Catenary System		
Full tension length auto-tensioned individual consecutive OCS section including: a. Messenger wire b. Contact wire c. Hangers/droppers d. Balance weight anchor termination e. Mid-point anchor f. Jumper wires		1 (maximum tension length to be installed on the system)
Messenger Wire		based on maximum drum size/length
Contact wire		based on maximum drum size/length
Cantilevers		25
Disconnect Switch		1 of each type
Surge arrester		2
Section Insulator		2 of each type
Section insulator runners and tips		3 for each type of section
Splices for various wire/conductor		4 each type
Poles		1 of each
Traffic Signals		
Road Traffic Signal Cabinet		1 complete cabinet setup
Pedestrian Traffic Signal Cabinet		1 complete cabinet setup
Traction Power		
Transformer Rectifier unit		2 of each type of make

Item	Quantity
Auxiliary Transformer	2 of each type of make
MVAC Circuit Breaker, truck mounted, completely assembled and functional	4 of each type of make
Rectifier DC Circuit Breaker, truck mounted, completely assembled and functional	2 of each type of make
Track Feeder DC Circuit Breaker, truck mounted, completely assembled and functional	4 of each type of make
No. Protective relays and Metering Devices	
Device 132, Reverse Current Instantaneous Relay	2 lot
Device 150, Rate-of-Rise Relay	2 lot
Device 151, Thermal Overload Relay	2 lot
Device 164M / 164T Enclosure Ground / Live Relay	2 lot
Device 176, DC Overcurrent Series Trip	2 lot
Device 182, Load Measuring Reclosing Relay	2 lot
Device 183, Voltage Sensing Relay	2 lot
Device 185, Transfer Trip Relay	2 lot
Closing coil for a DC circuit breaker	2 of each type of make
Trip coil for a DC circuit breaker	2 of each type of make
Spring charging motor for a DC circuit breaker	2 of each type
Complete set of all types of current limiting fuses	2 complete sets

APPENDIX 5-1A
Project Description Drawings

(see attached)



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. FOR DETAILS OF LEWIS FARMS PARK AND RIDE SEE 5-1A-46
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

revisions

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-01

VALLEY LINE WEST LRT

MATCHLINE
SEE DRAWING 5-1A-1

WEST HENDAY
PROMENADE

FUTURE
199 STREET

WEBER GREENS DRIVE / FUTURE 199 STREET
INTERSECTION WILL BE CONSTRUCTED AND
SIGNALIZED BY OTHER CONTRACTORS

EXISTING 199 STREET

TUC BOUNDARY

RAMP TO/FROM
SOUTHBOUND
ANTHONY HENDAY
DRIVE

RAMP FROM SB
ANTHONY HENDAY DRIVE

APPROXIMATE LOCATION
OF FUTURE RAMP FROM
SOUTHBOUND ANTHONY
HENDAY DRIVE

MATCHLINE
SEE DRAWING 5-1A-3

EX 3.00 SUP
EX 4.20
EX 3.95
3.70
3.95
4.25
4.00
4.25
EX SUP
EX 3.70
EX 3.50
EX 2.50 SHLD
EX 3.70
EX 4.00
EX 4.25

LEWIS FARMS TRANSIT
CENTRE

LEWIS FARMS

NO. 6 TURNOUT
NO. 6 TURNOUT
NO. 5 TURNOUT
TUC MAINTENANCE
FENCE
NO. 5 TURNOUT
NO. 8 CROSSOVER
TUC MAINTENANCE
FENCE

LEWIS FARMS PARK AND ROAD

APPROXIMATE LOCATION
OF FUTURE RAMP TO
SOUTHBOUND ANTHONY
HENDAY DRIVE

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

NOTES:
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3. FOR DETAILS OF LEWIS FARMS PARK AND RIDE SEE 5-1A-46
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
5. FOR INFORMATION ON FUTURE ANTHONY HENDAY DRIVE RAMPS SEE HWY 216 / ANTHONY HENDAY DRIVE FUNCTIONAL PLANNING STUDY 2008

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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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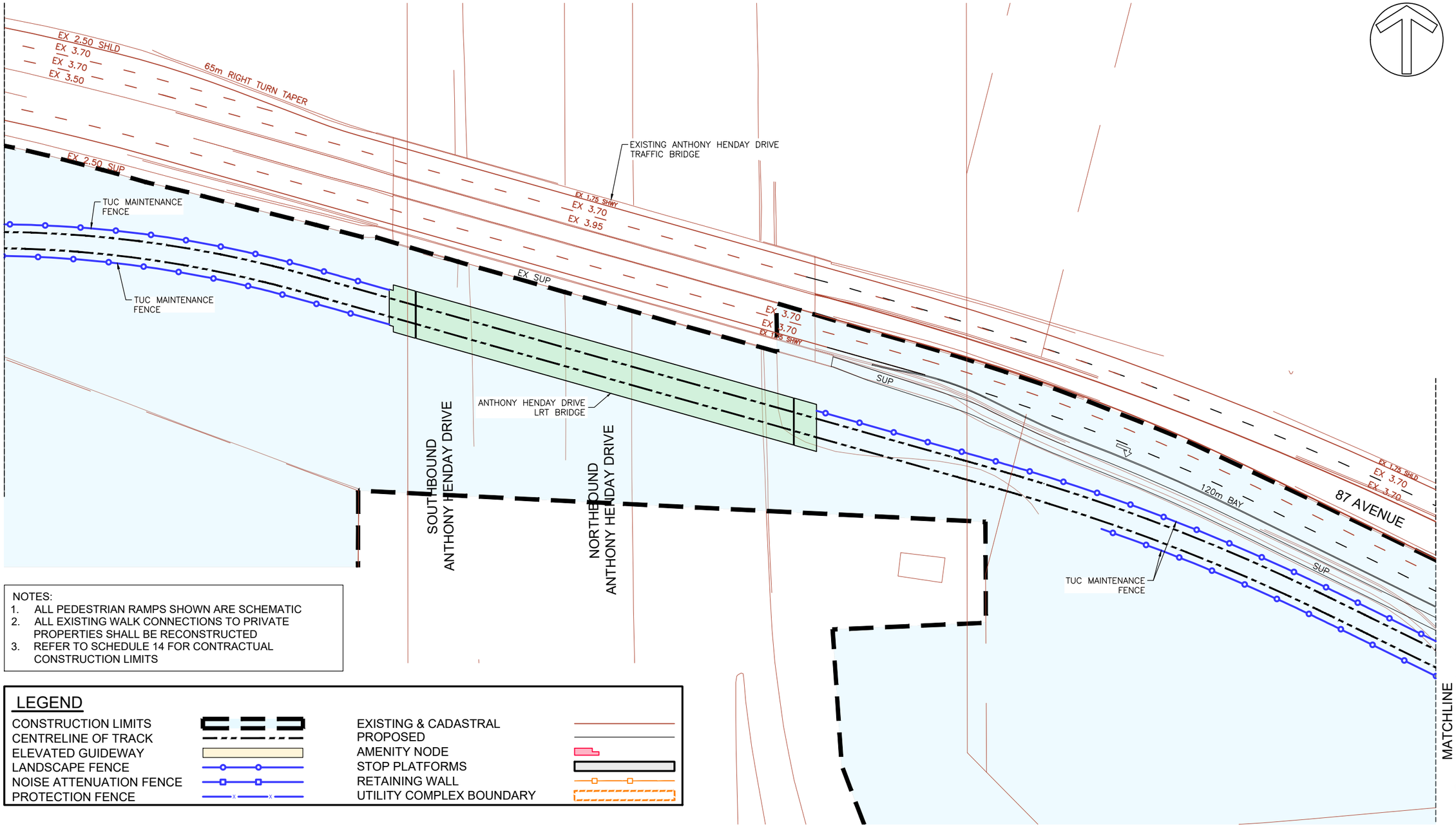
PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-02

VALLEY LINE WEST LRT



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3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

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0	RFP	14-02-20	JM

DRAWING SCALE
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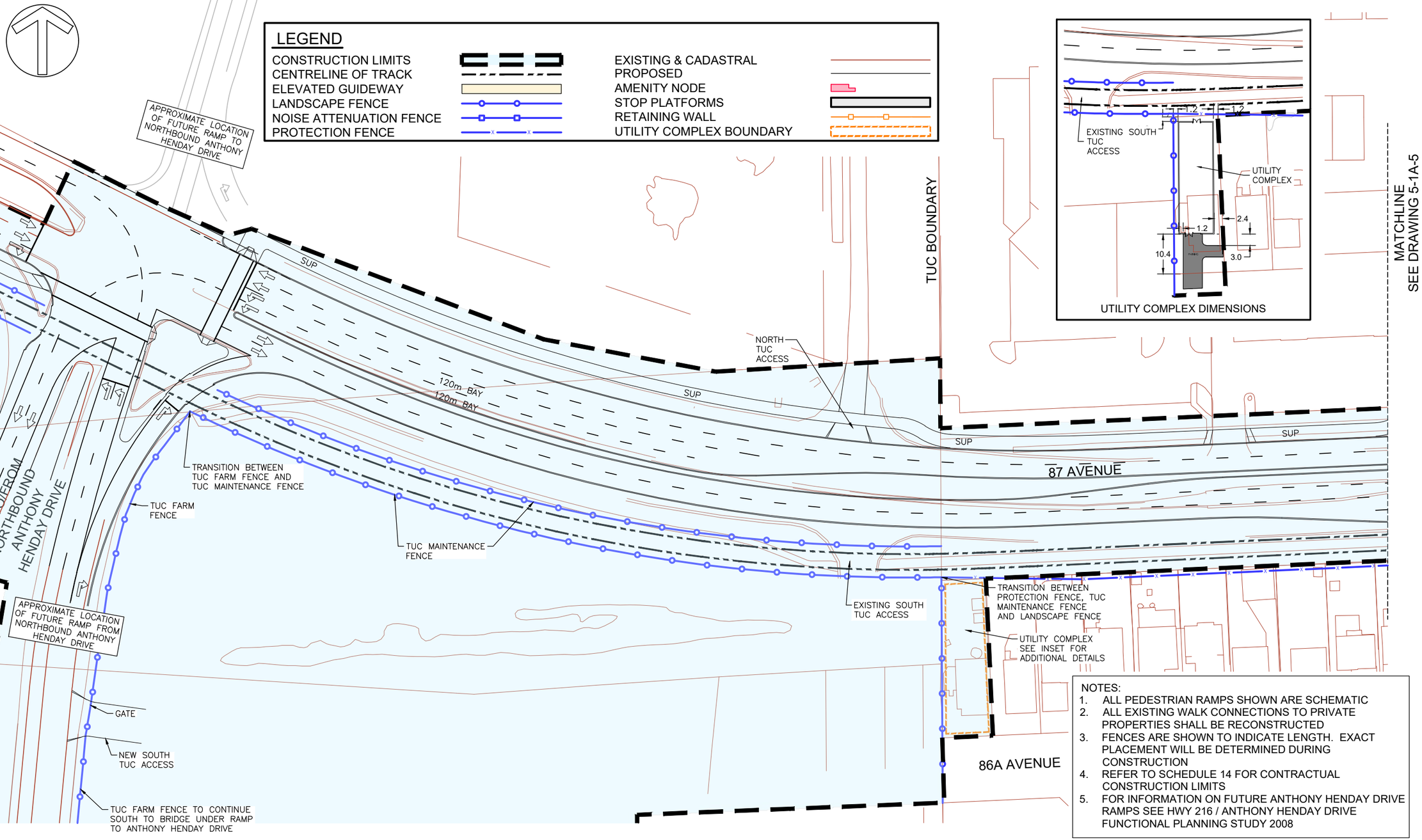
PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-03

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY



UTILITY COMPLEX DIMENSIONS

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
5. FOR INFORMATION ON FUTURE ANTHONY HENDAY DRIVE RAMPS SEE HWY 216 / ANTHONY HENDAY DRIVE FUNCTIONAL PLANNING STUDY 2008

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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
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PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-04

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

NOTES:
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4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

MATCHLINE
SEE DRAWING 5-1A-4

189 STREET

87A AVENUE

188 STREET

87A AVENUE

MATCHLINE
SEE DRAWING 5-1A-6

BUS PAD

SUP

SUP

SUP

SUP

BUS PAD

87 AVENUE

145m BAY

110m BAY

50m BAY

WALK

BUS PAD

WALK

ATCO FACILITY

WALK/ACCESS TO ATCO FACILITY

86A AVENUE

189 STREET

188 STREET

86A AVENUE

VALLEY LINE WEST LRT

no.	description	date	checked
	revisions		
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
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NOT FOR CONSTRUCTION

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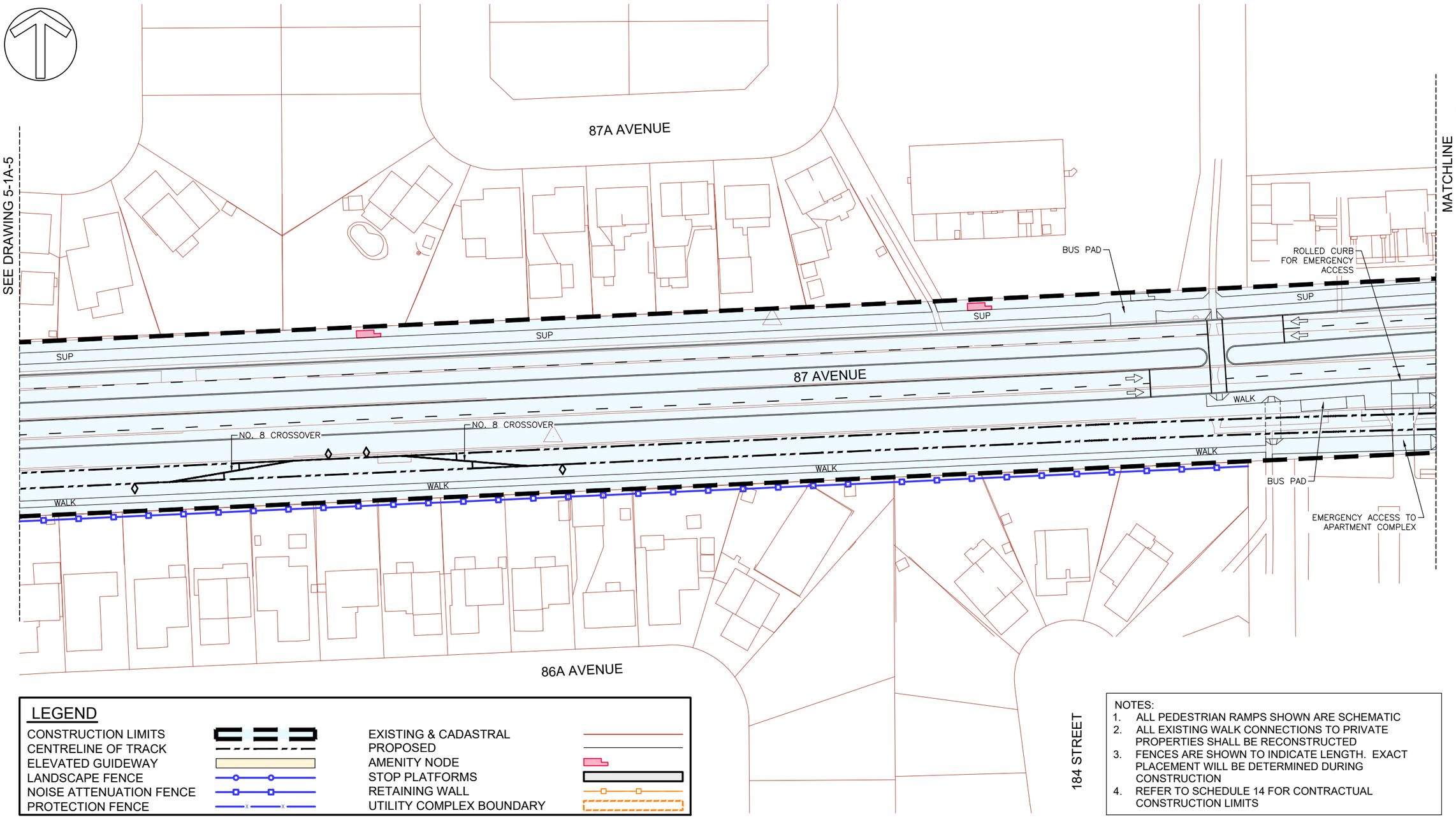
PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-05



LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

NOTES:
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no.	description	date	checked
	revisions		
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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

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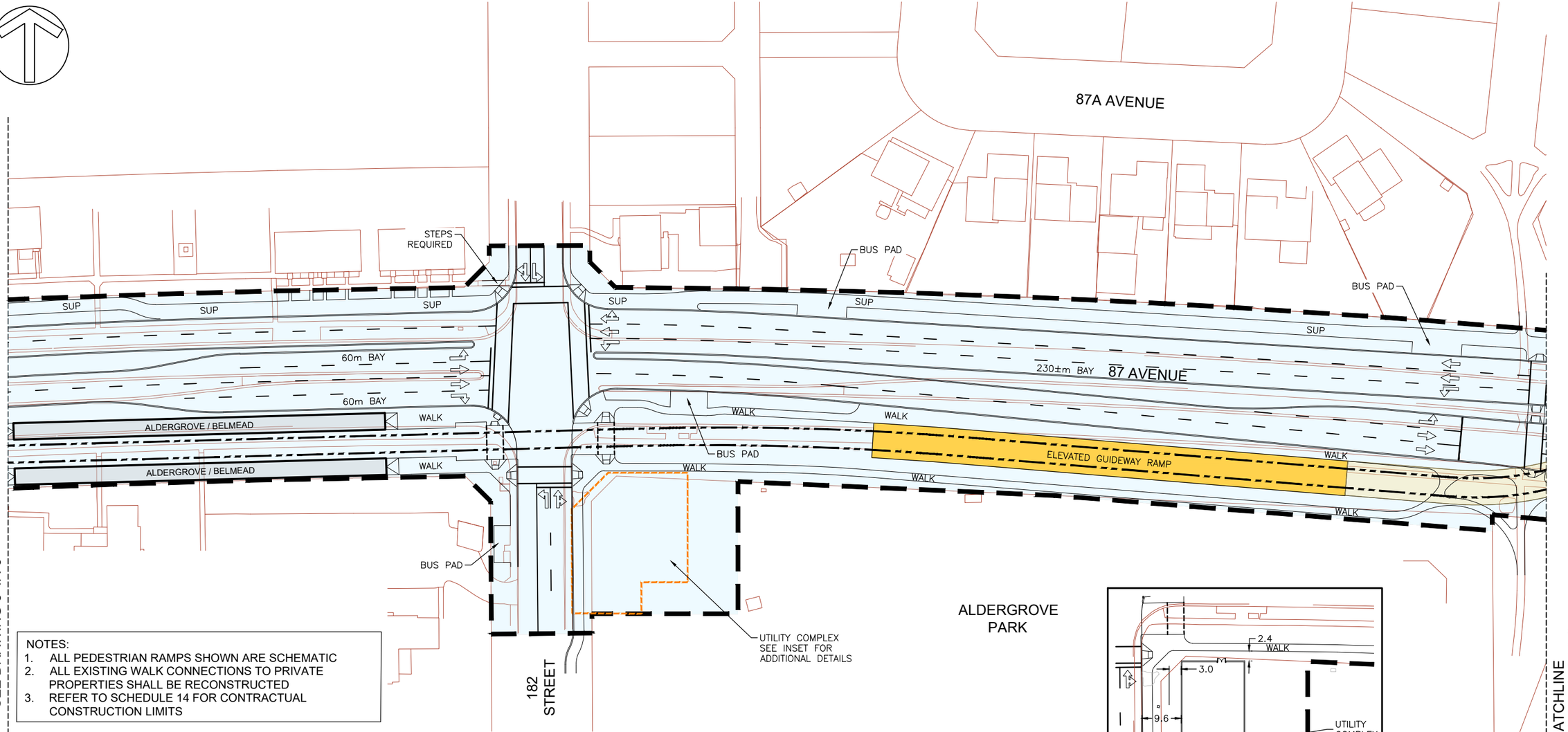
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-06

VALLEY LINE WEST LRT



NOTES:
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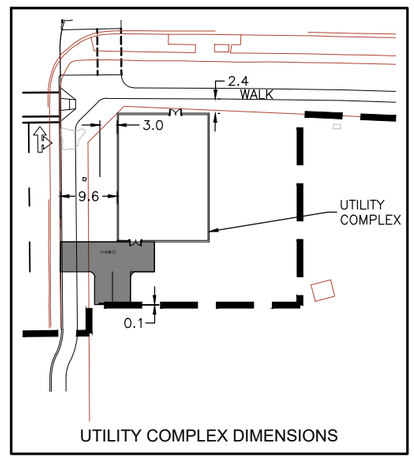
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS



UTILITY COMPLEX DIMENSIONS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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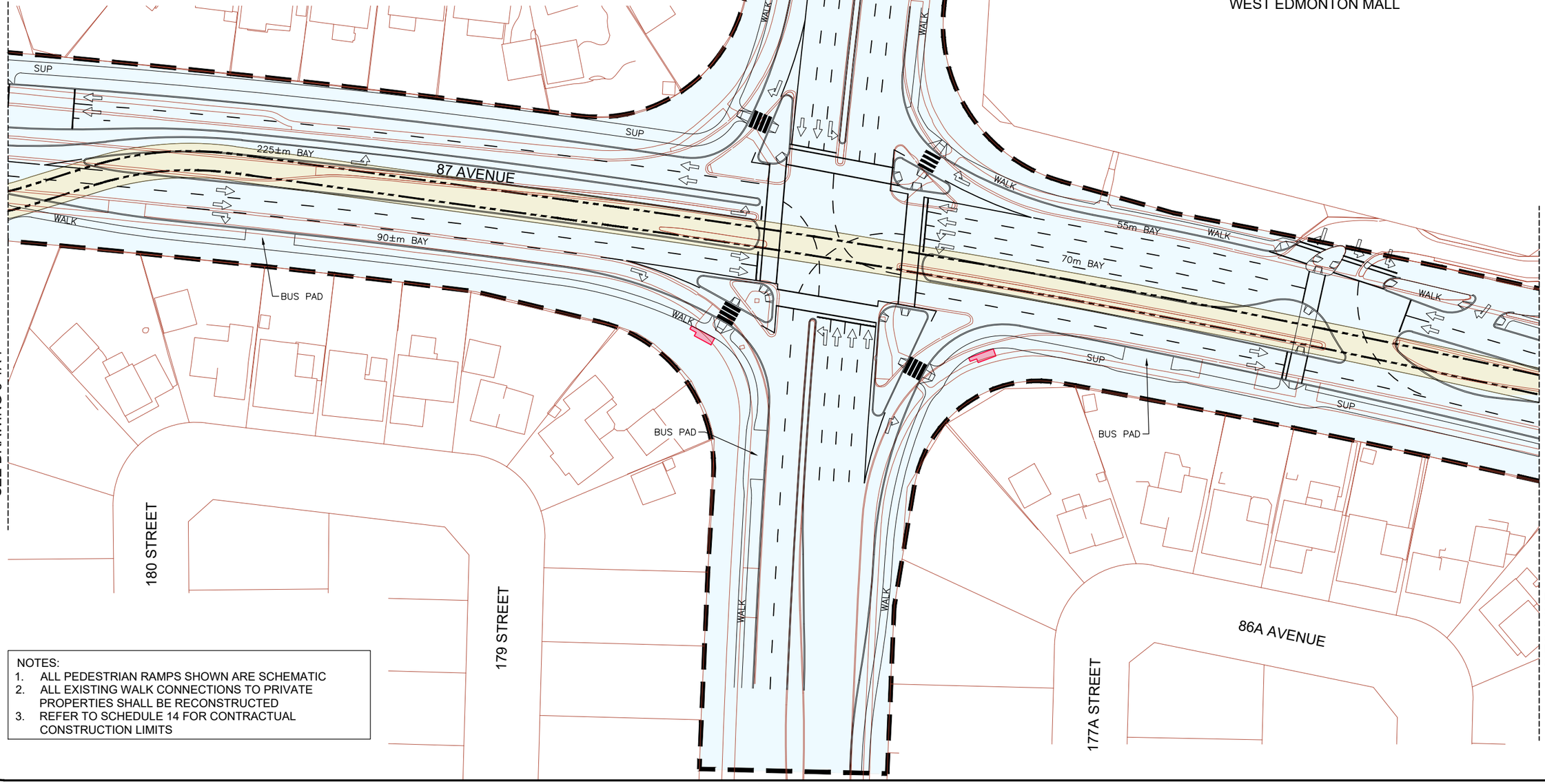
PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-07

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	



NOTES:
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3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

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	revisions		
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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

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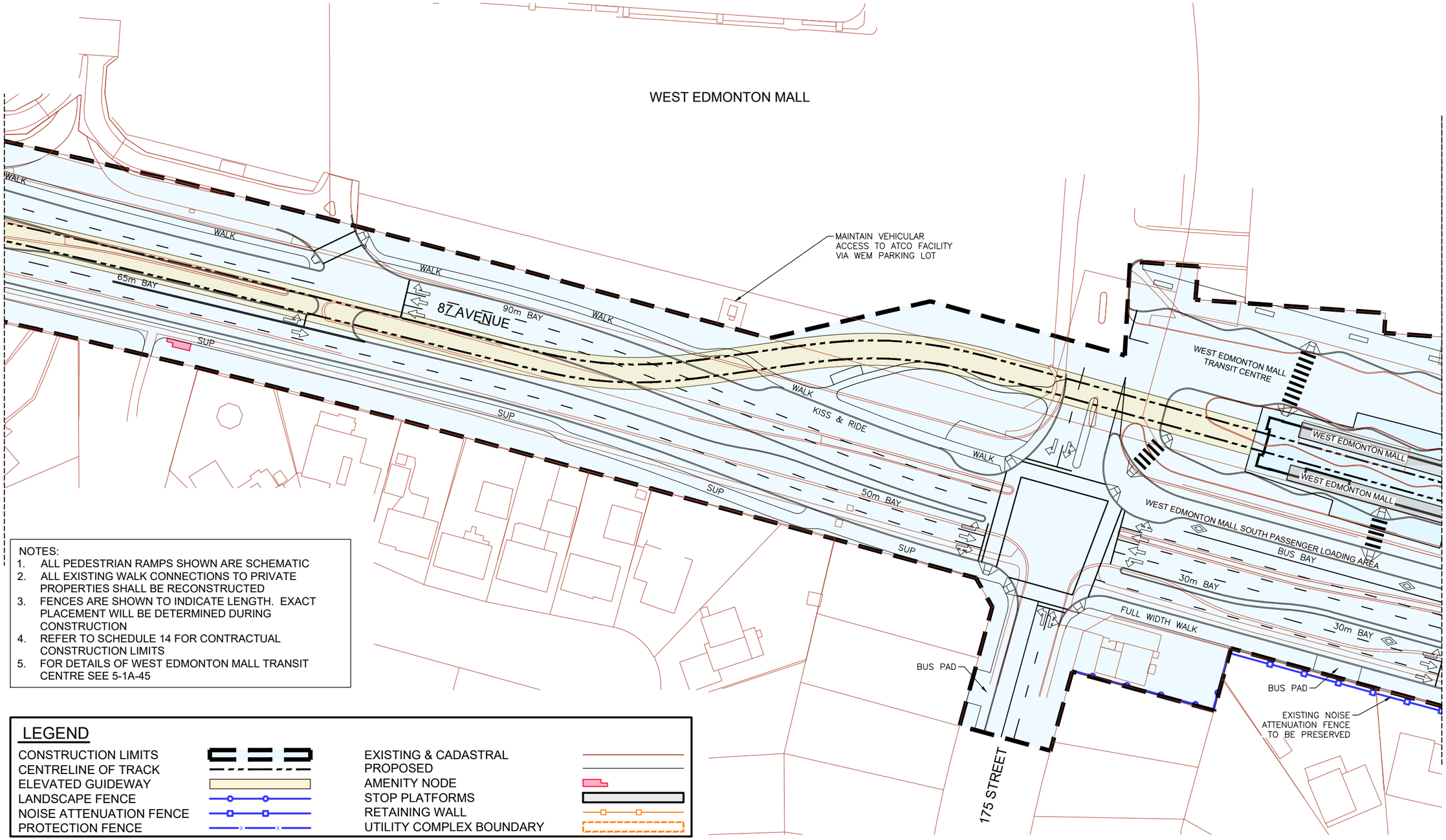
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-08



NOTES:
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3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
5. FOR DETAILS OF WEST EDMONTON MALL TRANSIT CENTRE SEE 5-1A-45

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
	revisions		
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-09

VALLEY LINE WEST LRT

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
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3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
5. FOR DETAILS OF WEST EDMONTON MALL TRANSIT CENTRE SEE 5-1A-45

WEST EDMONTON MALL

WEST EDMONTON MALL TRANSIT CENTRE

WEST EDMONTON MALL

WEST EDMONTON MALL

SUP

WALK

MAINTENANCE VEHICLE BAY

SUP

50m BAY

FULL WIDTH WALK

BUS PAD

SUP

SUP

SUP

87 AVENUE

50m BAY

WALK

EXISTING NOISE ATTENUATION FENCE TO BE PRESERVED

86 AVENUE

172 STREET

SUP

50m BAY

WALK

WALK

BUS PAD

SEE DRAWING 5-1A-9

MATCHLINE
SEE DRAWING 5-1A-11

VALLEY LINE WEST LRT

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
0 10 30 50m
1:1000m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering and Land Services
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-10

MATCHLINE
SEE DRAWING 5-1A-13

MISERICORDIA HOSPITAL

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
4. LENGTH OF RETAINING WALL SHOWN IS APPROXIMATE AND SHOULD BE DETERMINED AT DETAILED DESIGN

87 AVENUE

WALK
SUP
75m BAY
75m BAY
WALK

170 STREET
70m BAY
70m BAY
70m BAY

100m BAY

SUP
50m BAY
50m BAY
WALK
SUP

EXISTING BERM HEIGHT
TO BE PRESERVED

2
4

MATCHLINE
SEE DRAWING 5-1A-10

MATCHLINE
SEE DRAWING 5-1A-12

VALLEY LINE WEST LRT

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE	x x	UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

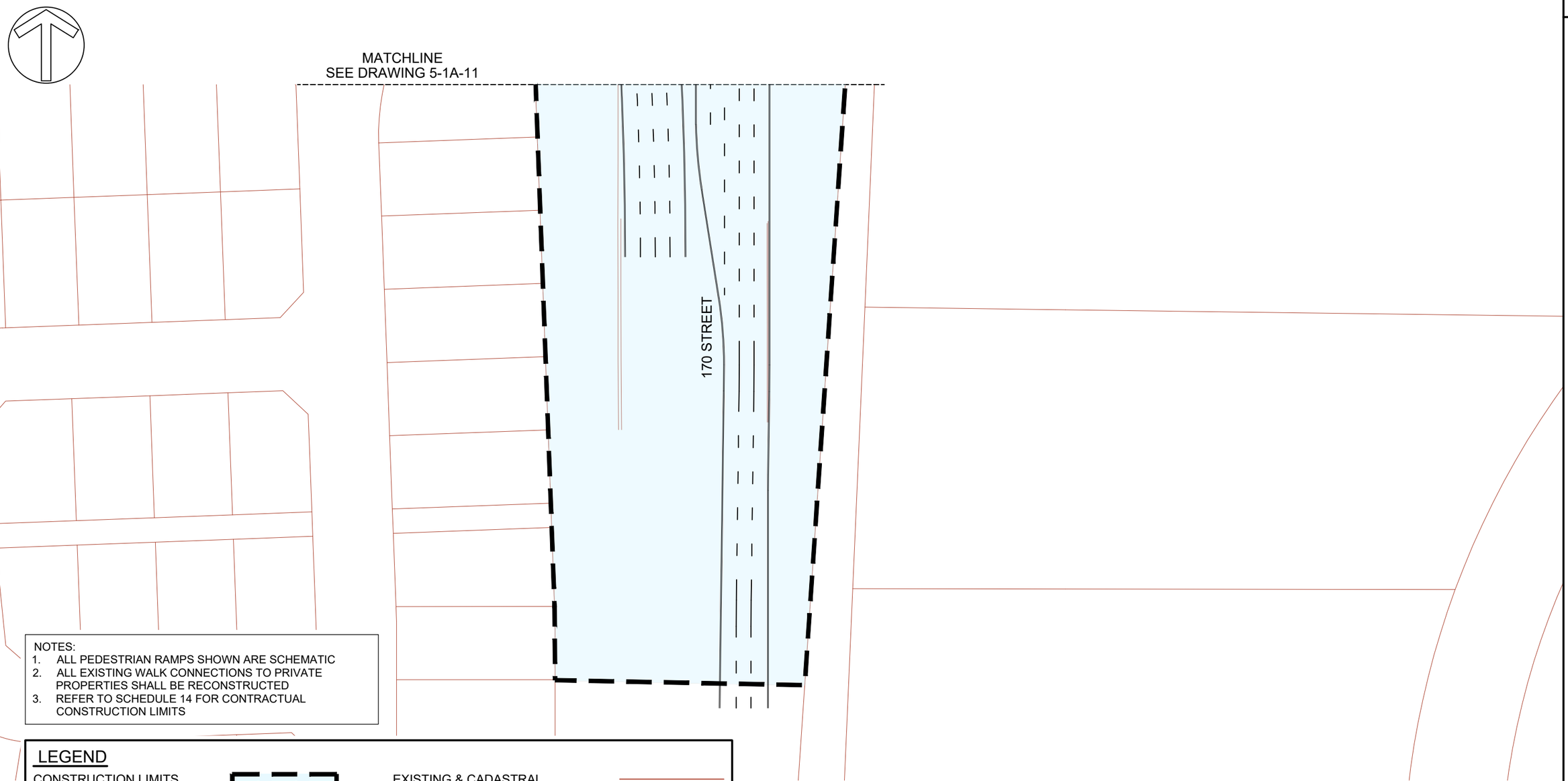
DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-11



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LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-12

MATCHLINE
SEE DRAWING 5-1A-11

MISERICORDIA HOSPITAL

HELIPAD

WALK

PLAZA

MISERICORDIA

SUP

BUS PAD

KISS AND RIDE

87 AVENUE

10m BAY

55m BAY

EMERGENCY VEHICLES ONLY

UTILITY COMPLEX
SEE INSET FOR ADDITIONAL DETAILS

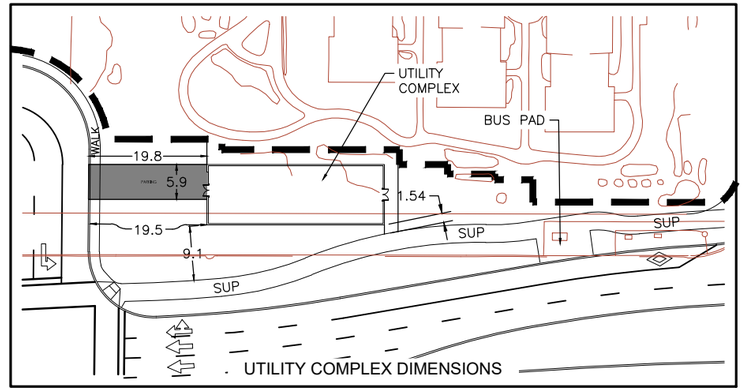
30m BAY

60m BAY

165 STREET

PARKING

169 STREET



UTILITY COMPLEX DIMENSIONS

MATCHLINE
SEE DRAWING 5-1A-14

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
4. DETAILED DESIGN OF THE MISERICORDIA ACCESS ROAD IS TO BE DEVELOPED IN FULL CONSULTATION WITH THE MISERICORDIA STAKEHOLDERS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

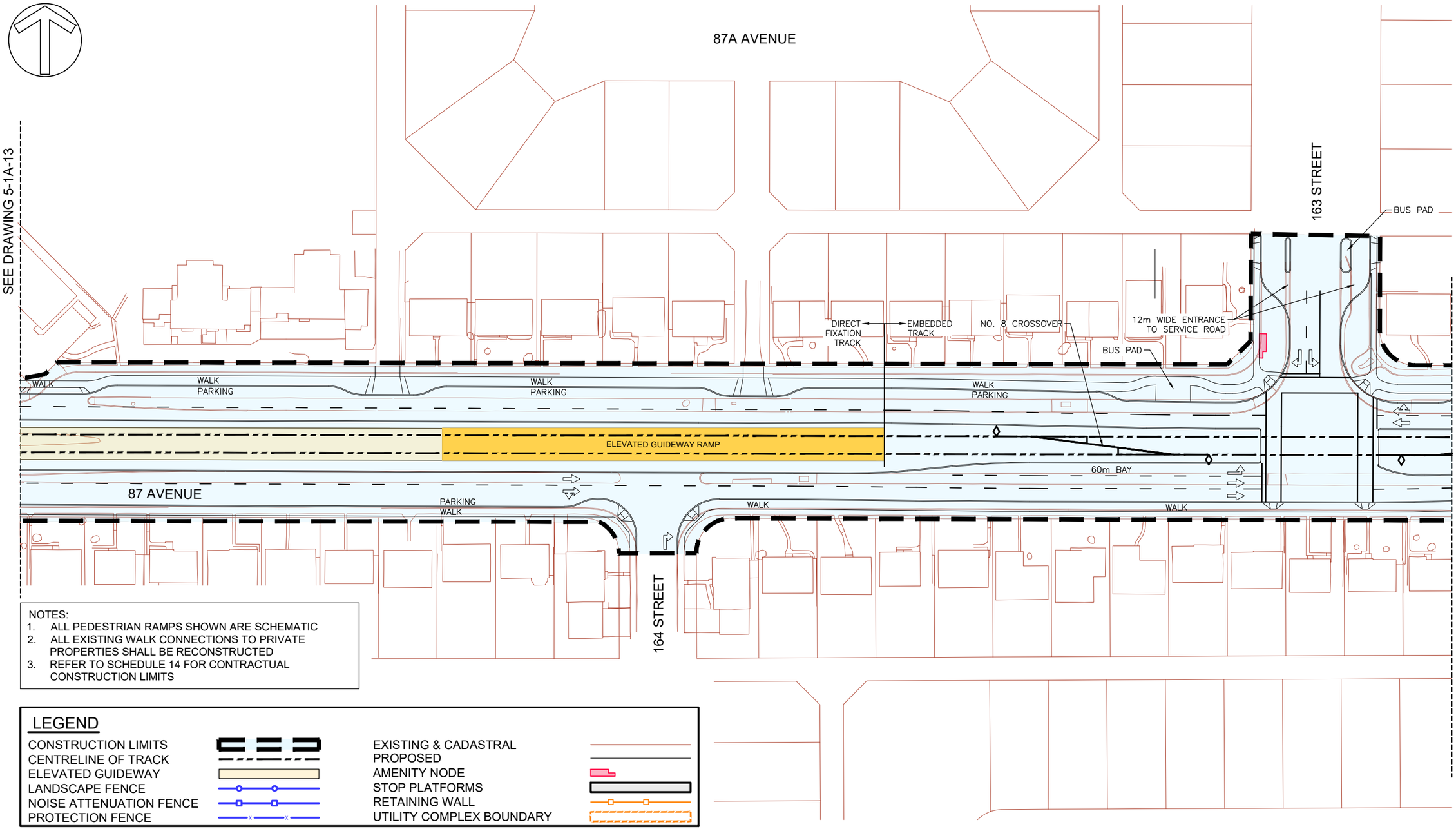
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-13

VALLEY LINE WEST LRT



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

revisions

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-14

MATCHLINE
SEE DRAWING 5-1A-17

NO. 8 CROSSOVER

WALK
PARKING

WALK
PARKING

WALK
PARKING

BUS PAD

87 AVENUE

120m BAY

WALK

WALK

WALK

WALK

WALK

BUS PAD

BUS PAD

161 STREET

LOCATION SUBJECT TO RELOCATION OF THE ACCESS ROAD AS PER PROPOSED DEVELOPMENT AT MEADOWLARK PLACE.

MATCHLINE
SEE DRAWING 5-1A-14

MATCHLINE
SEE DRAWING 5-1A-16

86 AVENUE

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
revisions			
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-15

VALLEY LINE WEST LRT

MATCHLINE
SEE DRAWING 5-1A-17

MEADOWLARK MALL

MEADOWLARK ROAD

WALK
PARKING
60m BAY
WALK
BUS PAD
WALK
55m BAY
87 AVENUE
WALK
WALK
BUS PAD
WALK
40m BAY
159 STREET

MATCHLINE
SEE DRAWING 5-1A-15

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL PROPOSED	
CENTRELINE OF TRACK		AMENITY NODE	
ELEVATED GUIDEWAY		STOP PLATFORMS	
LANDSCAPE FENCE		RETAINING WALL	
NOISE ATTENUATION FENCE		UTILITY COMPLEX BOUNDARY	
PROTECTION FENCE			

VALLEY LINE WEST LRT

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

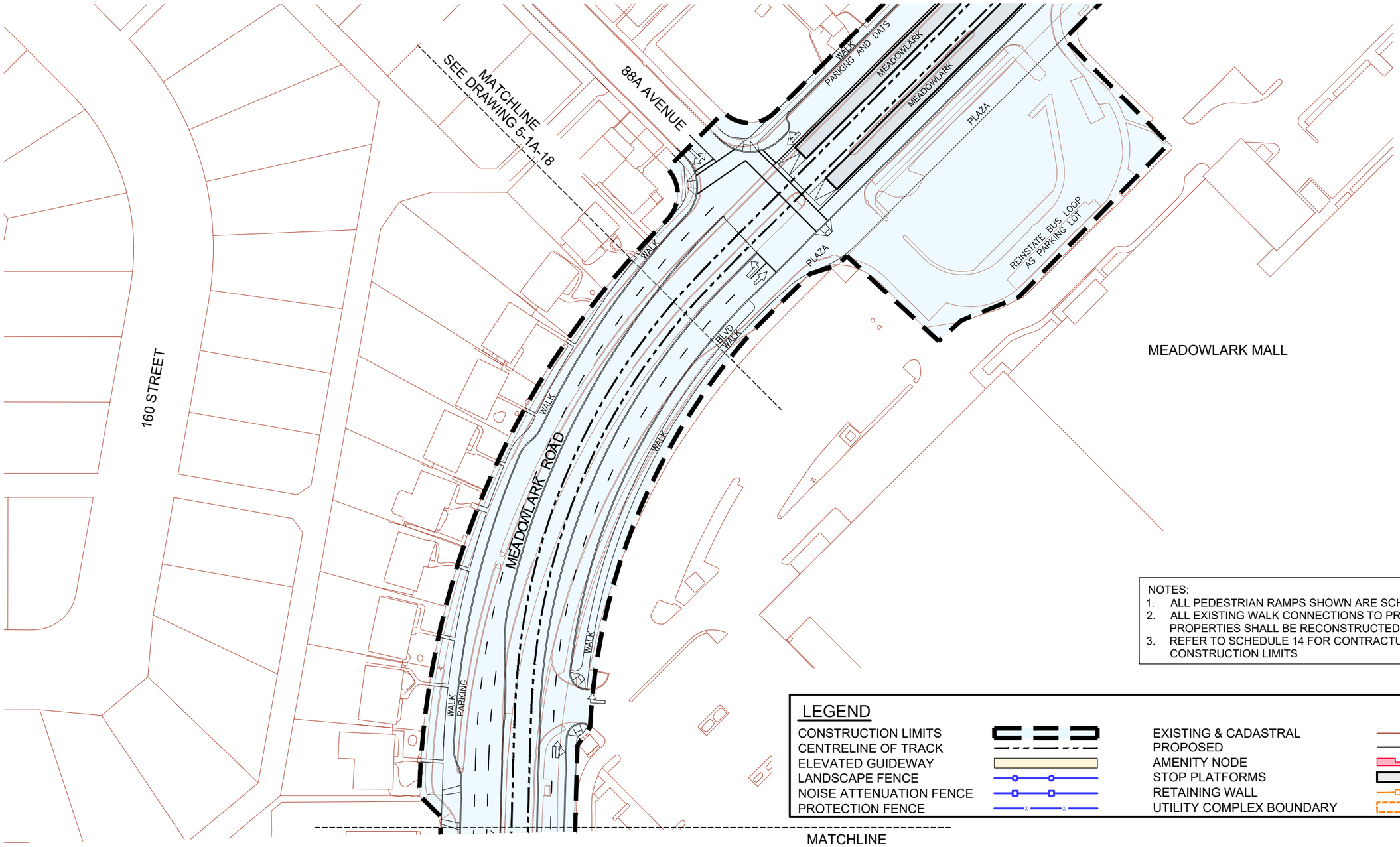
DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-16



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-17

VALLEY LINE WEST LRT

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

MATCHLINE
SEE DRAWING 5-1A-17

88A AVENUE

88B AVENUE

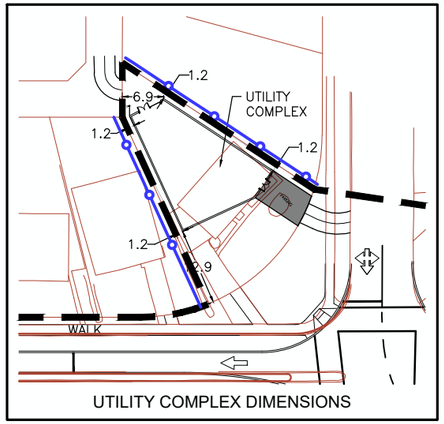
89 AVENUE

157 STREET

MATCHLINE
SEE DRAWING 5-1A-19

UTILITY COMPLEX
SEE INSET FOR ADDITIONAL DETAILS

UTILITY COMPLEX DIMENSIONS



WALK
PARKING AND DATS
MEADOWLARK
MEADOWLARK
WALK
WALK
PARKING
MEADOWLARK ROAD
60m BAY
PARKING
35m BAY
45m BAY
WALK
BLVD
WALK
PLAZA
PLAZA
NO. 8 CROSSOVER
NO. 8 TURNOUT
WALK
WALK
EMERGENCY ACCESS TO APARTMENTS
SET OFF TRACK CLEARANCE TO ACCOMMODATE ON FULL TRAIN LENGTH
90 AVENUE
REINSTATE BUS LOOP AS PARKING LOT
MEADOWLARK MALL

VALLEY LINE WEST LRT

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

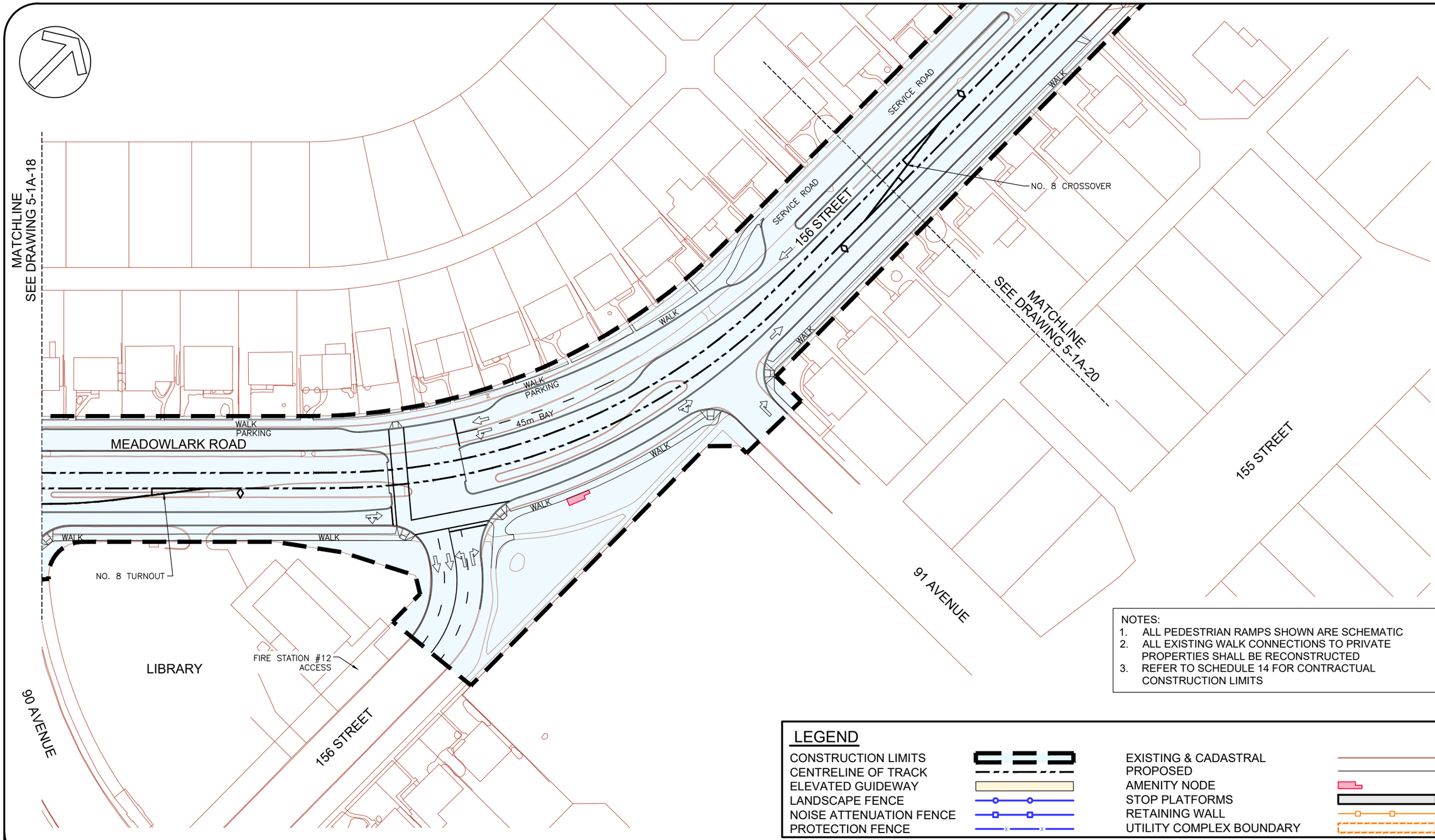
DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-18



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

no.	description	date	checked
revisions			
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

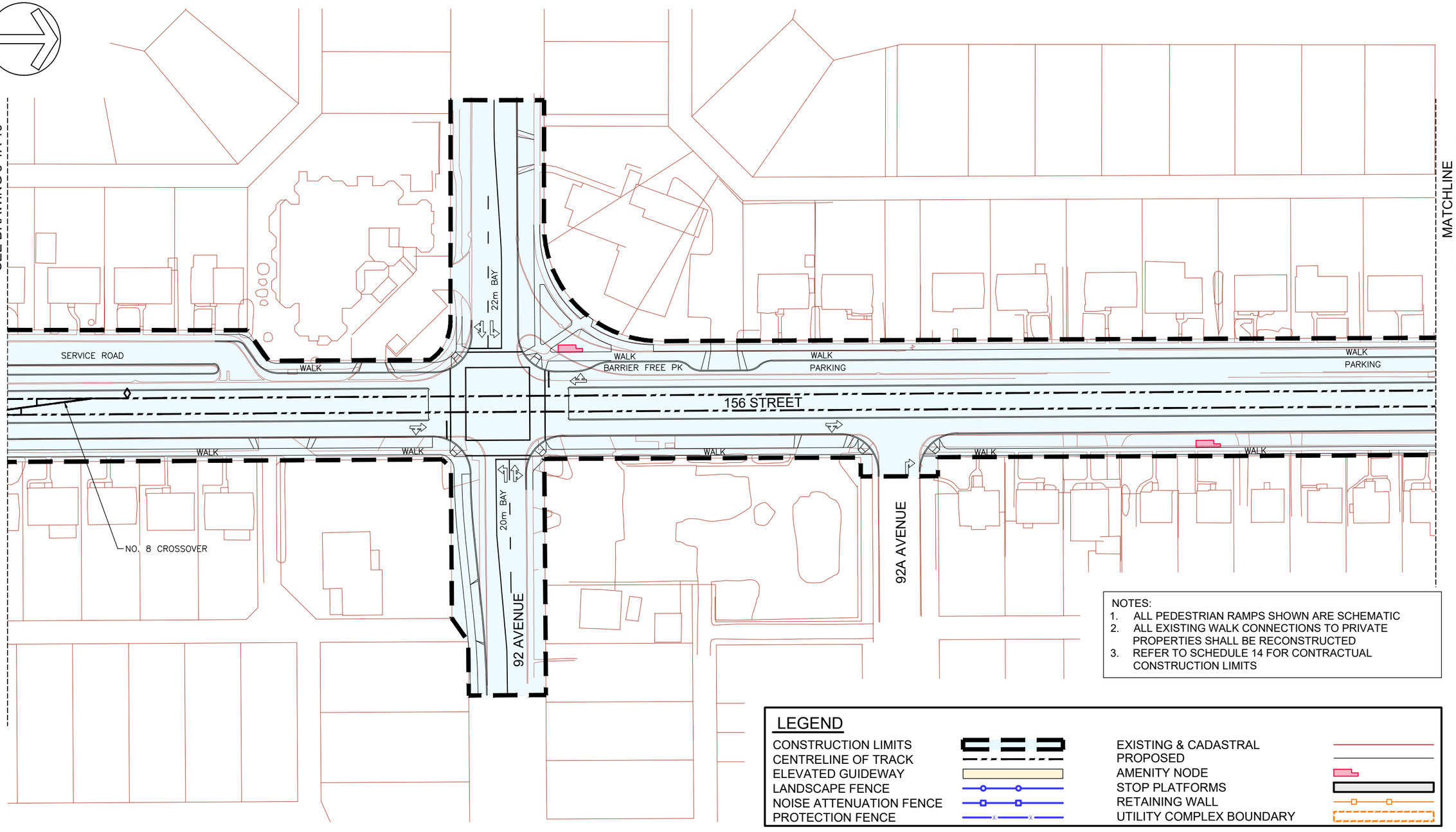
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-19

VALLEY LINE WEST LRT



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
revisions			
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

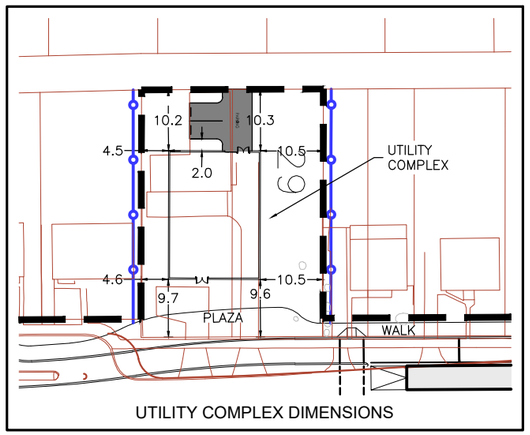
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering and Land Services
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-20

VALLEY LINE WEST LRT



UTILITY COMPLEX DIMENSIONS

MATCHLINE
SEE DRAWING 5-1A-20

MATCHLINE
SEE DRAWING 5-1A-22

157 STREET

UTILITY COMPLEX
SEE INSET FOR
ADDITIONAL DETAILS

PROVIDE SEMI MOUNTABLE
CURB ADJACENT TO STOP

PLAZA

WALK

PARKING

GLENWOOD / SHERWOOD

156 STREET

60m BAY

75m BAY

GLENWOOD / SHERWOOD

93A AVENUE

SIDEWALK TO TIE
TO PLAZA AROUND
BUILDING

PROVIDE SEMI MOUNTABLE
CURB ADJACENT TO STOP

BUS PAD

95 AVENUE

VALLEY LINE WEST LRT

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-21

MATCHLINE
SEE DRAWING 5-1A-21

MATCHLINE
SEE DRAWING 5-1A-23

156 STREET

155 STREET

96 AVENUE

97 AVENUE

GLENWOOD / SHERWOOD

PLAZA

WALK

NO. 8 CROSSOVER

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-22

VALLEY LINE WEST LRT

MATCHLINE
SEE DRAWING 5-1A-22

MATCHLINE
SEE DRAWING 5-1A-24

156 STREET

155 STREET

98 AVENUE

99 AVENUE

99 AVENUE

PARKING

PARKING

EXISTING ACCESS MAY BE RELOCATED WESTWARDS BY OTHER CONTRACTORS BEFORE START OF CONSTRUCTION, IN WHICH CASE LAYBY WILL NEED TO MOVE EASTWARDS

NO. 8 CROSSOVER

WALK

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

no.	description	date	checked
revisions			
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

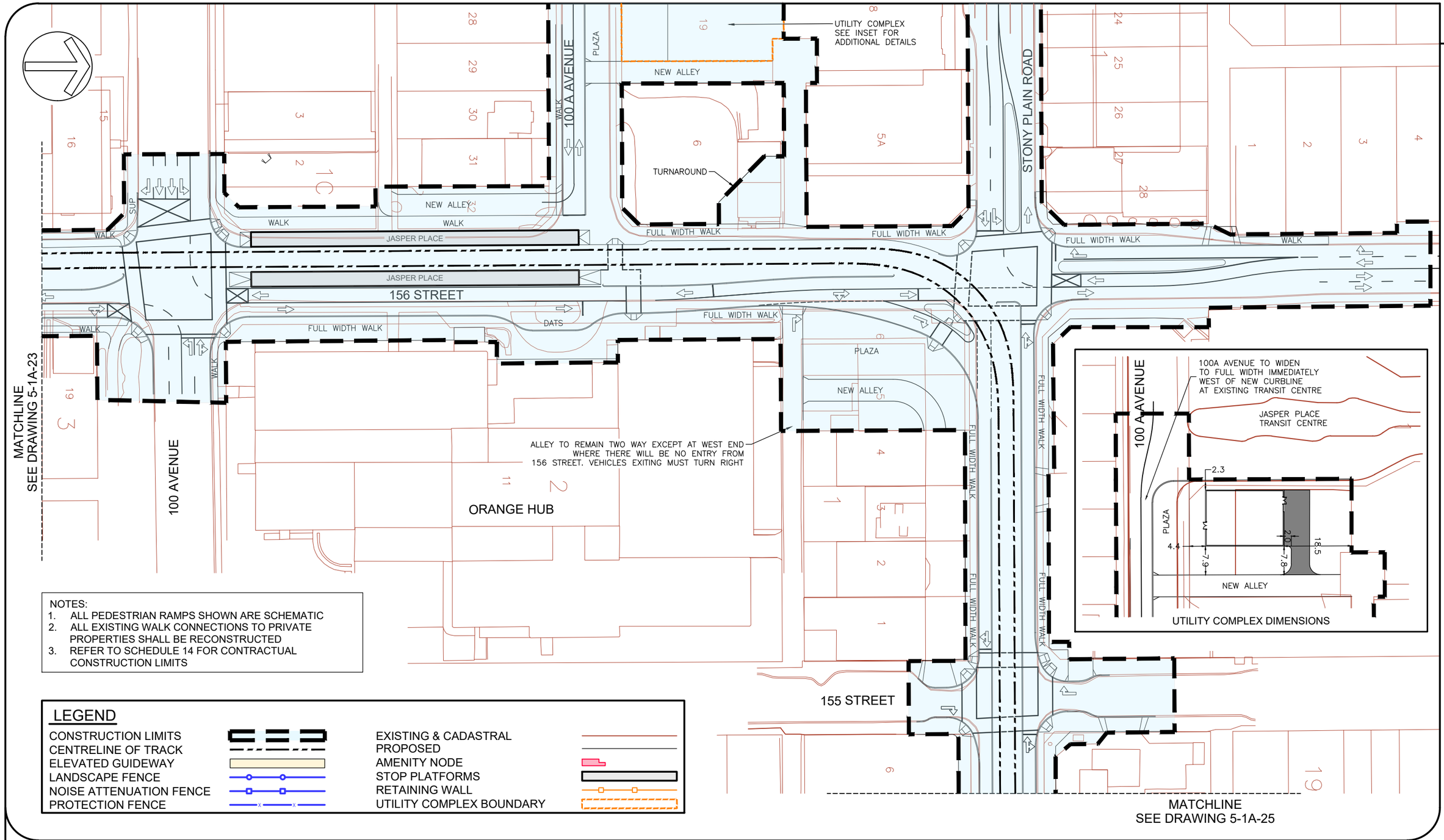
DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-23



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

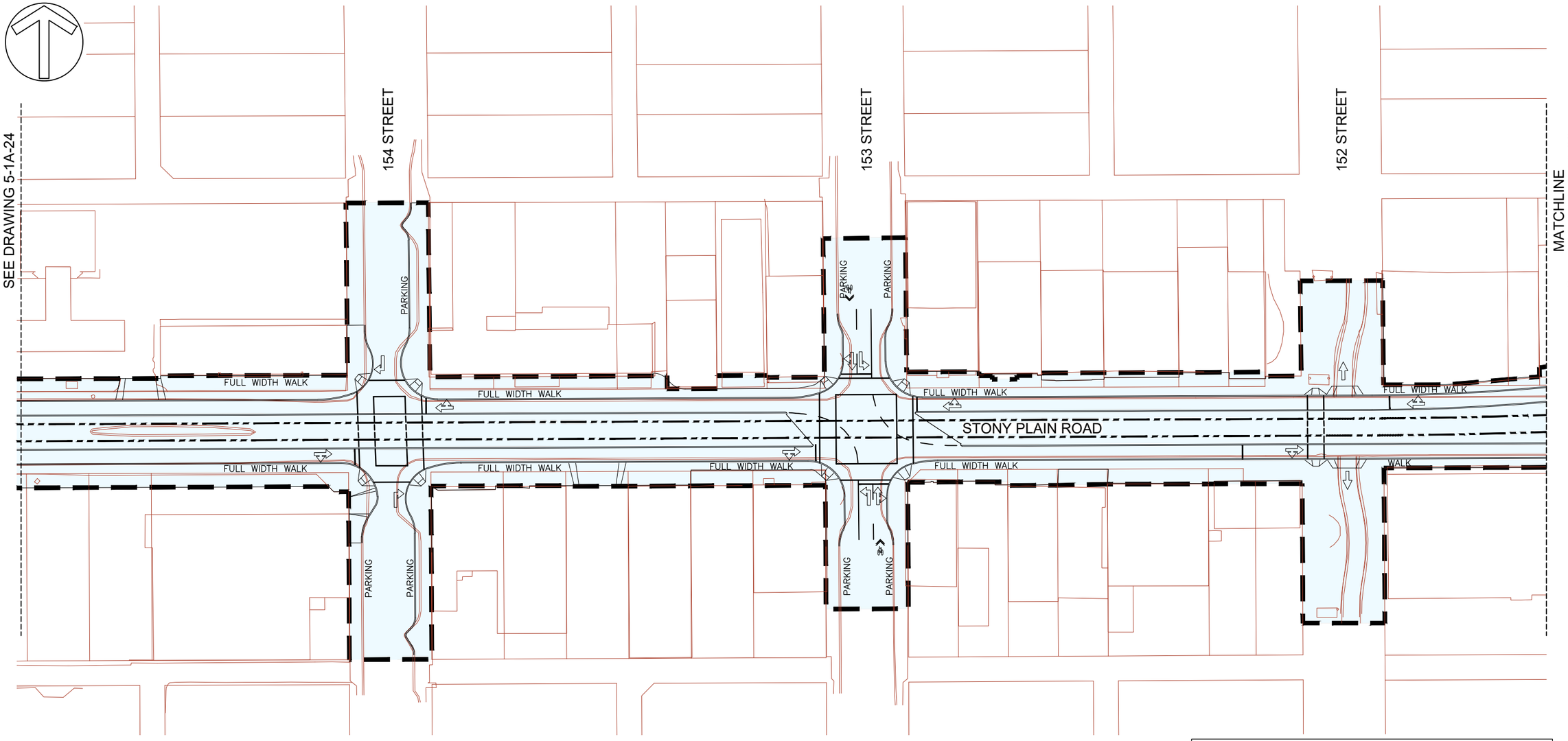
DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-24



LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-25

VALLEY LINE WEST LRT

MATCHLINE
SEE DRAWING 5-1A-25

151 STREET

150 STREET

PERMITTED DIRECTIONAL MOVEMENTS WILL DEPEND ON PARKING LOT CONFIGURATION WHICH WILL BE CONSTRUCTED BY OTHERS

PARKING

PARKING

PARKING

FULL WIDTH WALK

WALK

WALK

STONY PLAIN ROAD / 149 STREET

STONY PLAIN ROAD

STONY PLAIN ROAD / 149 STREET

WALK

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

PARKING AND DATS

WALK

40m BAY

WALK

WALK

BUS PAD

FULL WIDTH WALK

100m BAY

100m BAY

WALK

MACKINNON RAVINE

SUMMIT DRIVE

149 STREET

MATCHLINE
SEE DRAWING 5-1A-27

VALLEY LINE WEST LRT

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
4. LENGTH OF RETAINING WALL SHOWN IS APPROXIMATE AND SHOULD BE DETERMINED AT DETAILED DESIGN

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

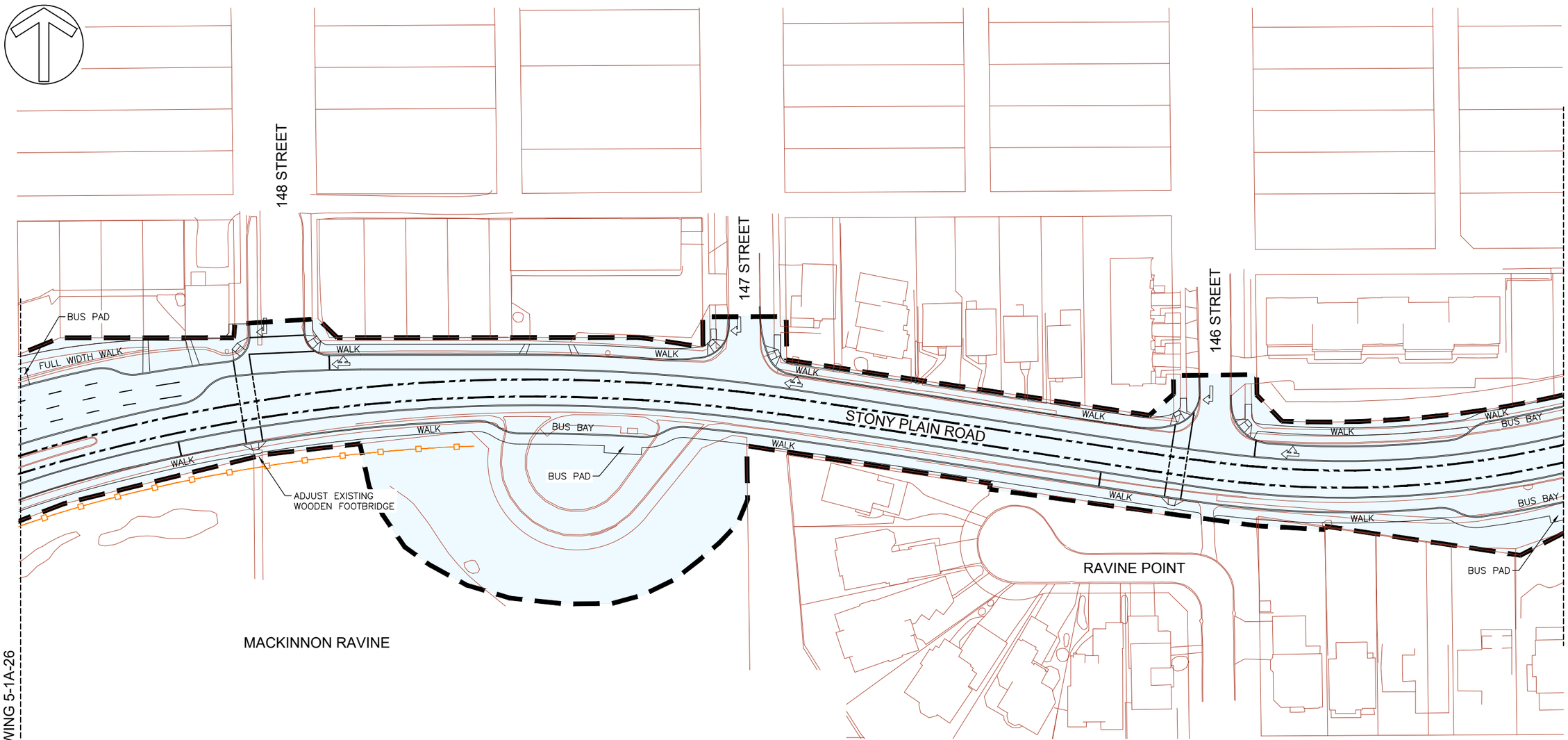
DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-26



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
4. LENGTH OF RETAINING WALL SHOWN IS APPROXIMATE AND SHOULD BE DETERMINED AT DETAILED DESIGN

LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:1000m 0 10 30 50m

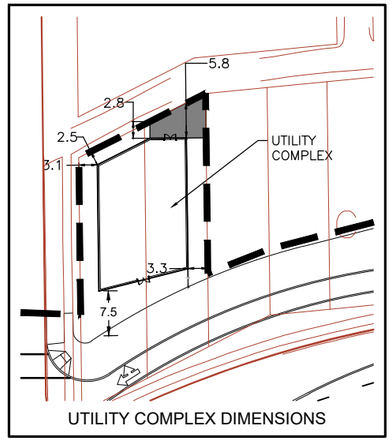
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-27

VALLEY LINE WEST LRT



UTILITY COMPLEX DIMENSIONS

MATCHLINE
SEE DRAWING 5-1A-27

145 STREET

UTILITY COMPLEX
SEE INSET FOR
ADDITIONAL DETAILS

BUS PAD

SUP

WALK
BUS BAY

105m BAY

105m BAY

STONY PLAIN ROAD

FULL WIDTH WALK

WALK

BUS PAD

WALK

WALK

WALK

WALK

WALK

WALK

NO. 8 CROSSOVER

144 STREET

143 STREET

142 STREET

MATCHLINE
SEE DRAWING 5-1A-29

BUS PAD

VALLEY LINE WEST LRT

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
revisions			
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

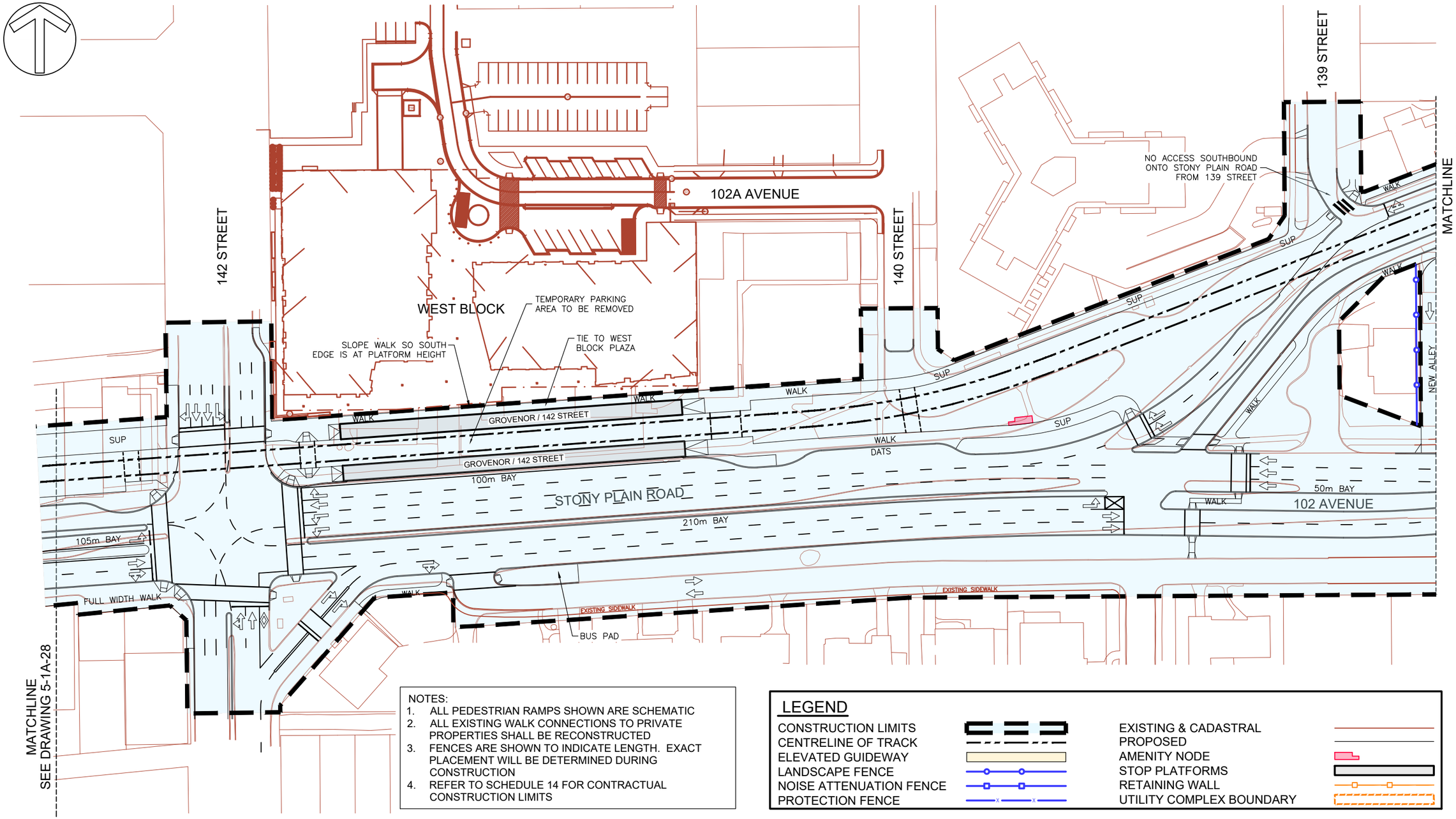
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton

HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-28



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
	revisions		
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2	RFP V3	23-07-20	JM
1	RFP	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

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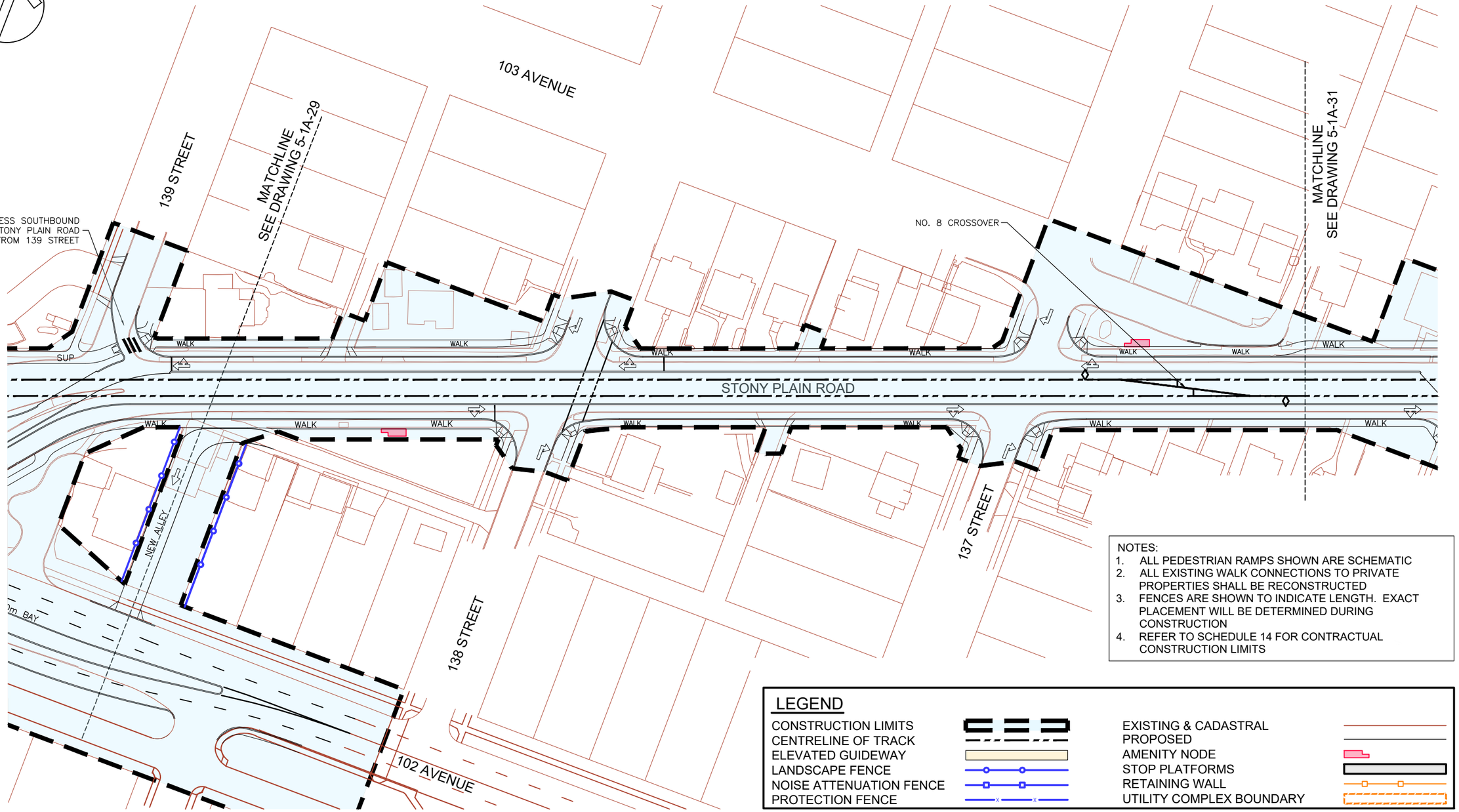
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-29

VALLEY LINE WEST LRT



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LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
	revisions		
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
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NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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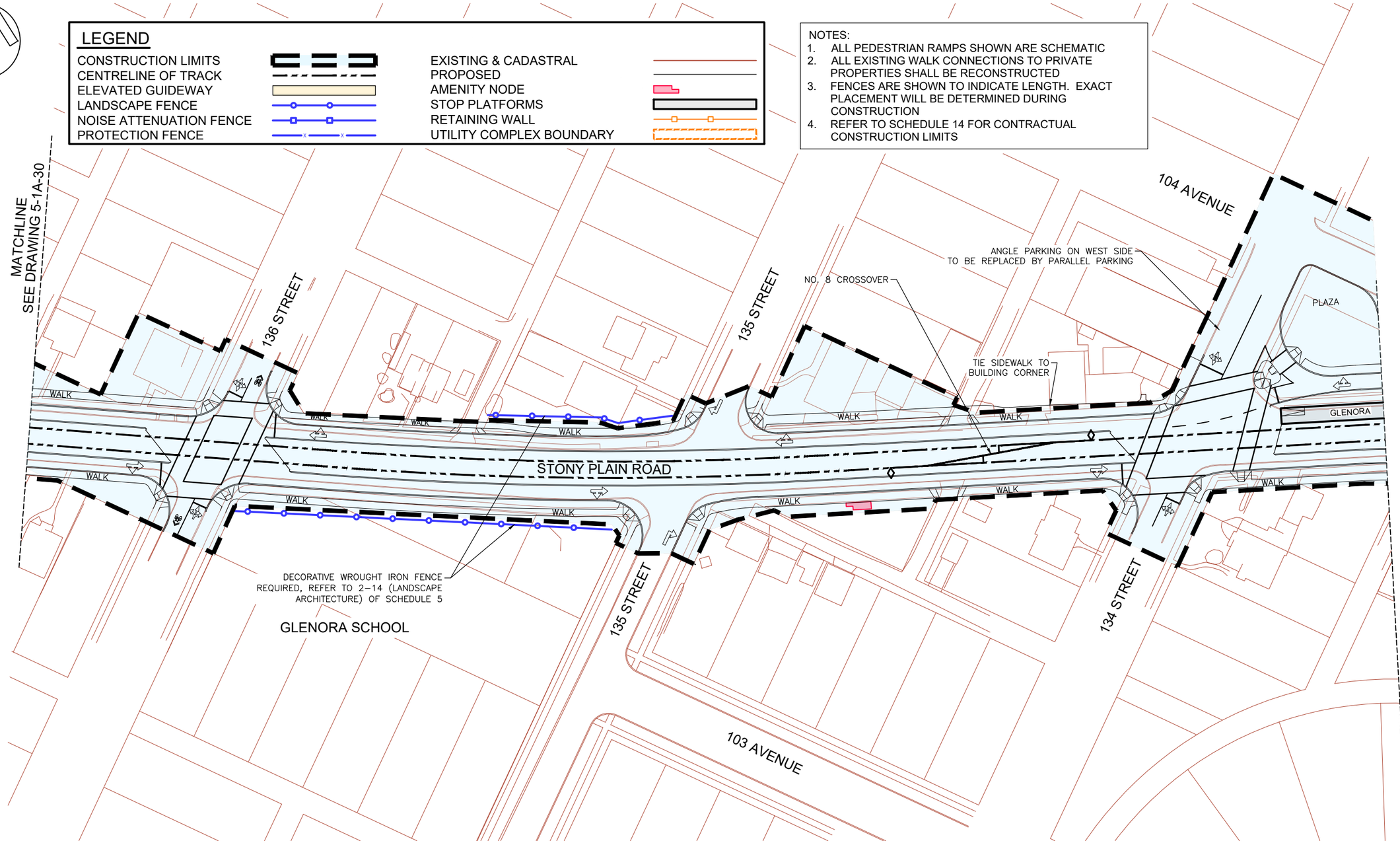
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-30

VALLEY LINE WEST LRT



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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

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Edmonton
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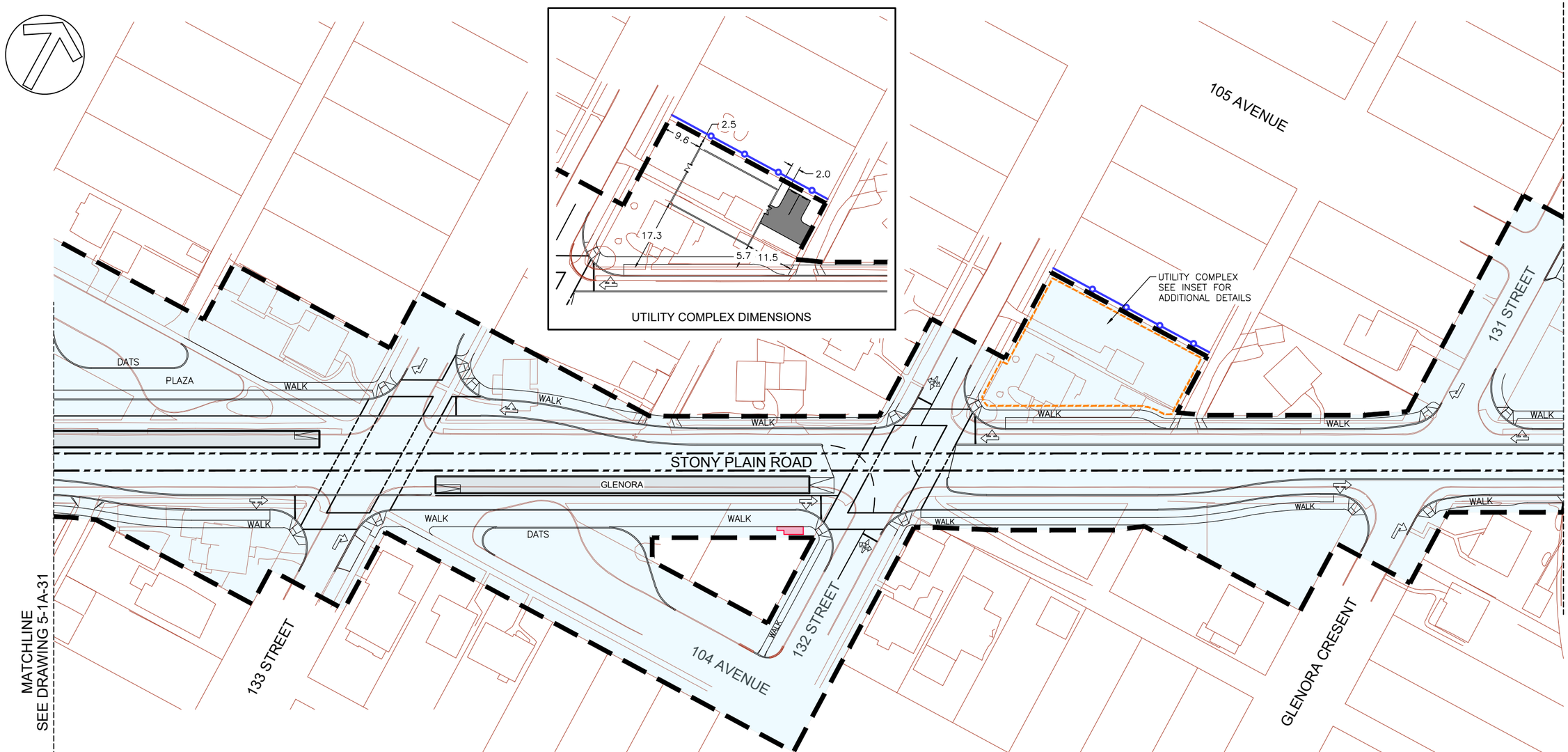
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-31



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LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

revisions

DRAWING SCALE
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NOT FOR CONSTRUCTION

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DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-32

VALLEY LINE WEST LRT

GROAT ROAD

129 STREET

128 STREET

131 STREET

SAMUEL DICKSON ROTARY PARK

NEW ALLEY

BARRIER OVER BRIDGE BETWEEN ROAD AND WALK/SUP

RETAINING WALL TO BE CONSTRUCTED

STONY PLAIN ROAD

CONNAUGHT DRIVE

WOODBEND PLACE

GLENORA POINTE

SYLVANCROFT LANE

GLENORA CRESENT

MATCHLINE SEE DRAWING 5-1A-32

MATCHLINE SEE DRAWING 5-1A-34

VALLEY LINE WEST LRT

WALK

SUP

NOTES:
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LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
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- AMENITY NODE
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no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

revisions

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant

Edmonton

HATCH

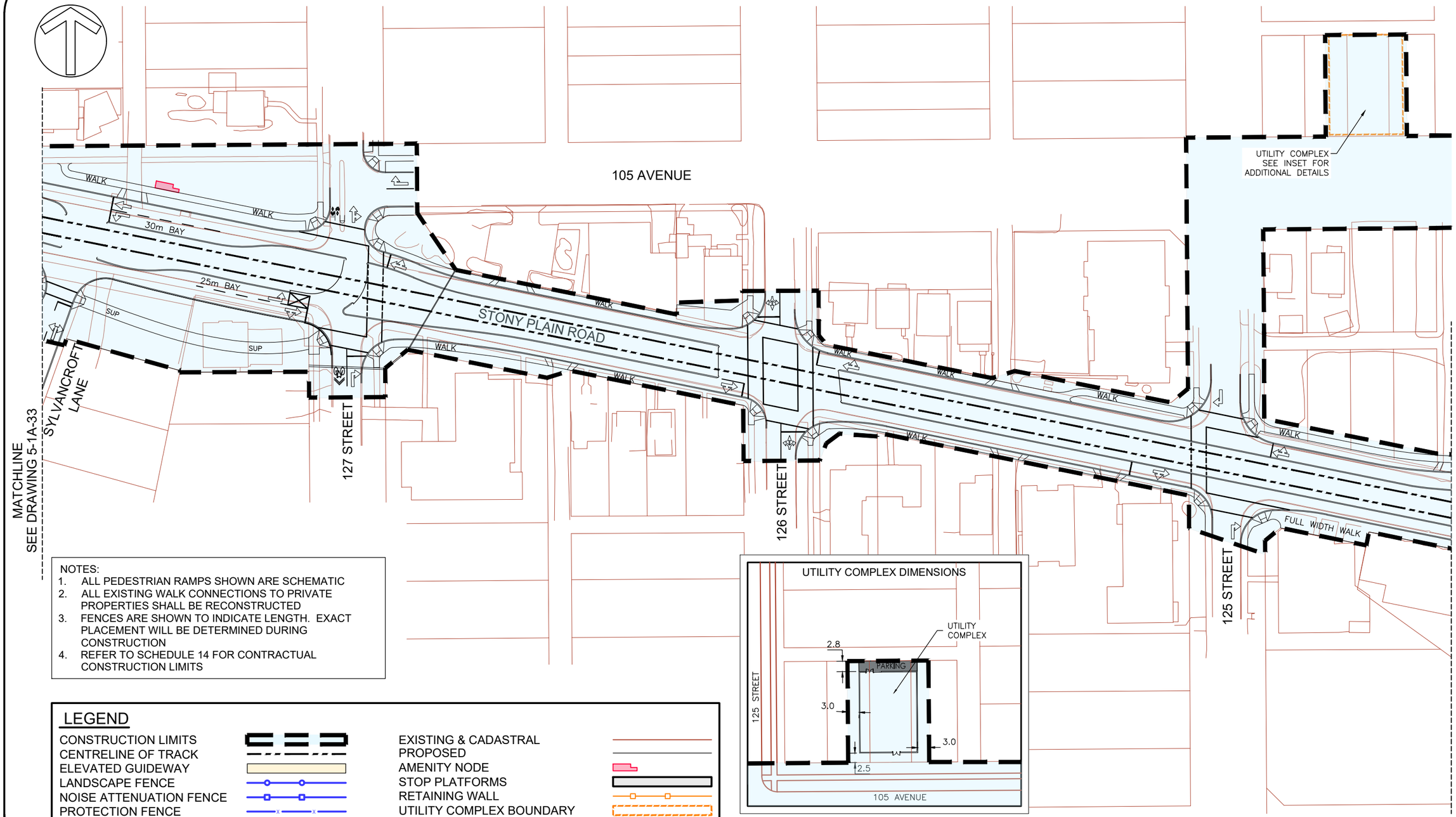
ISL Engineering

DIALOG

MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-33



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LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
4	RFP V4	18-09-20	JM
3	RFP V3	23-07-20	JM
2	RFP ADDENDUM 11	23-06-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-34

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
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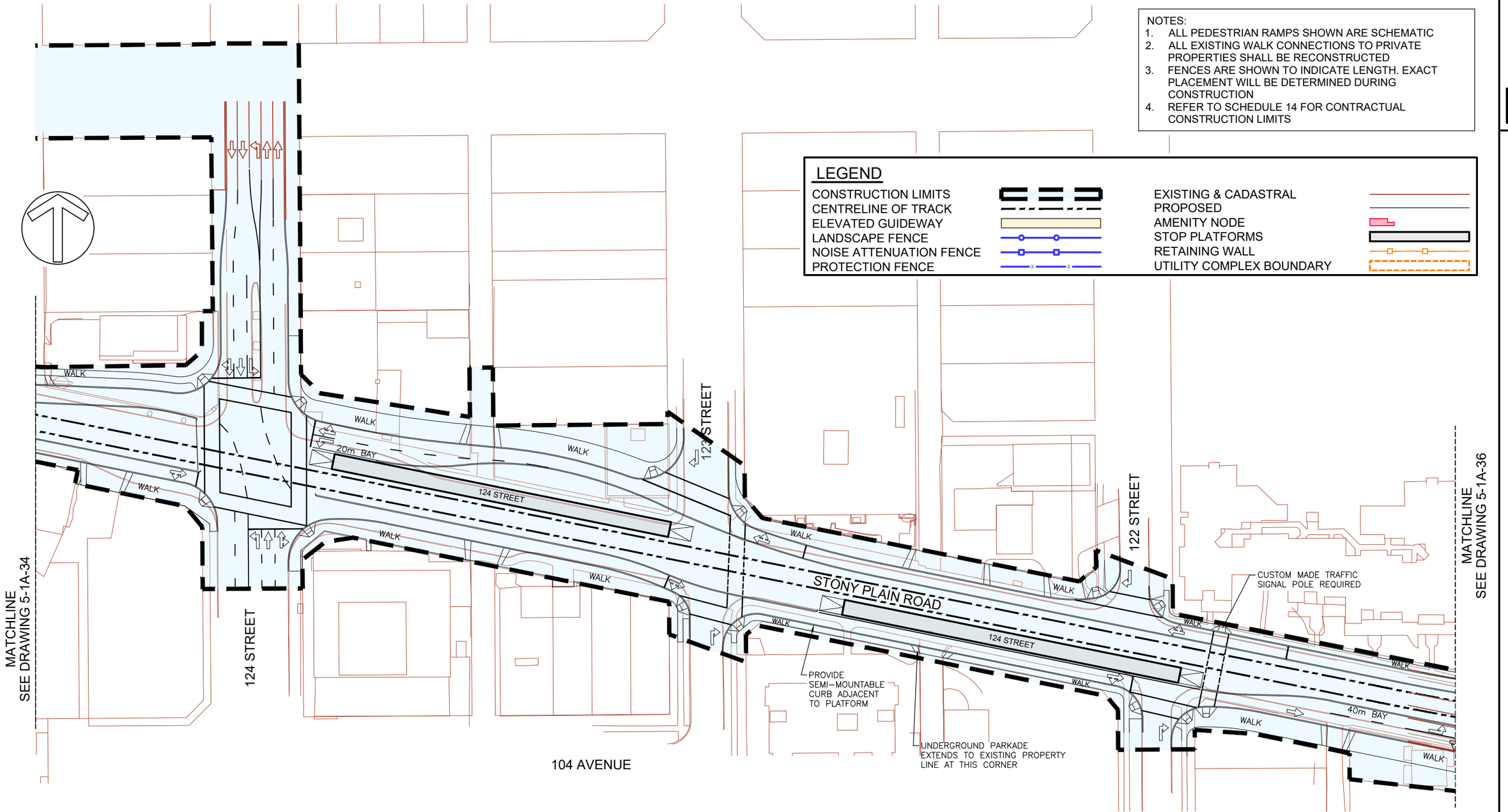
LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	



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4	RFP V4	18-09-20	JM
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2	RFP ADDENDUM 11	23-06-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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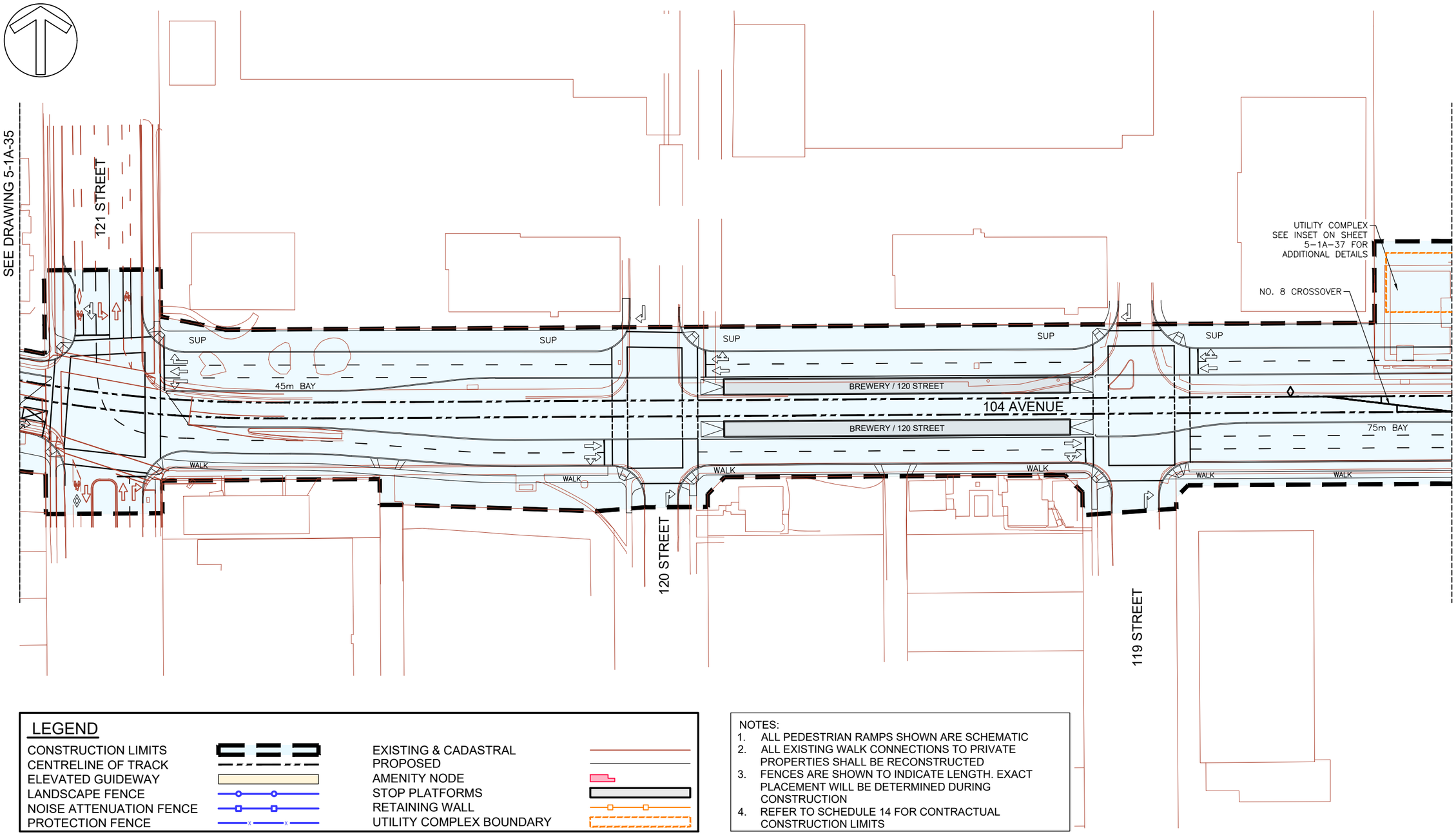
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-35



LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
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no.	description	date	checked
4	RFP V4	18-09-20	JM
3	RFP V3	23-07-20	JM
2	RFP ADDENDUM 11	23-06-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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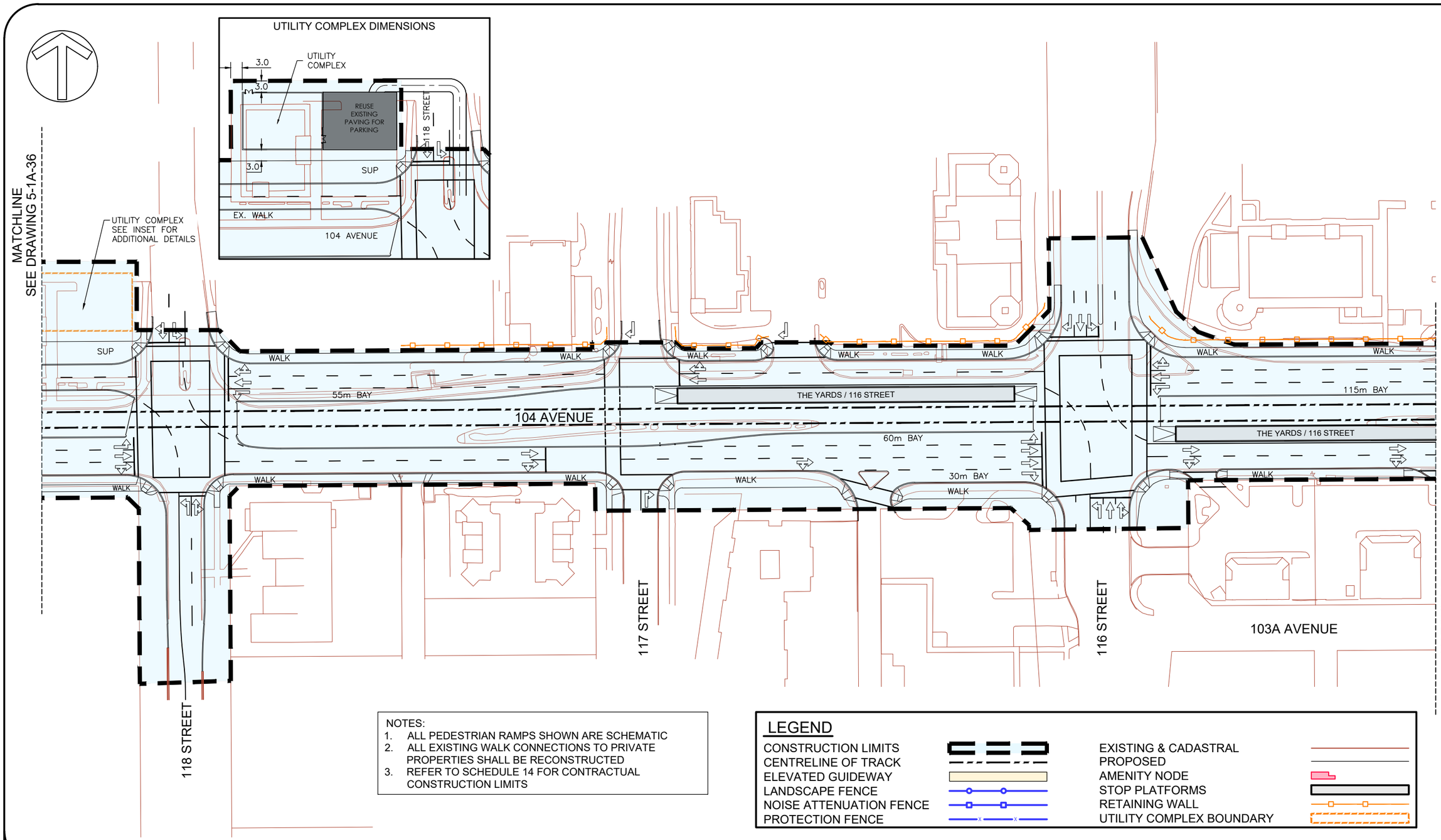
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-36

VALLEY LINE WEST LRT



NOTES:
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2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

CONSTRUCTION LIMITS	EXISTING & CADASTRAL
CENTRELINE OF TRACK	PROPOSED
ELEVATED GUIDEWAY	AMENITY NODE
LANDSCAPE FENCE	STOP PLATFORMS
NOISE ATTENUATION FENCE	RETAINING WALL
PROTECTION FENCE	UTILITY COMPLEX BOUNDARY

no.	description	date	checked
4	RFP V4	18-09-20	JM
3	RFP V3	23-07-20	JM
2	RFP ADDENDUM 11	23-06-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

revisions

DRAWING SCALE
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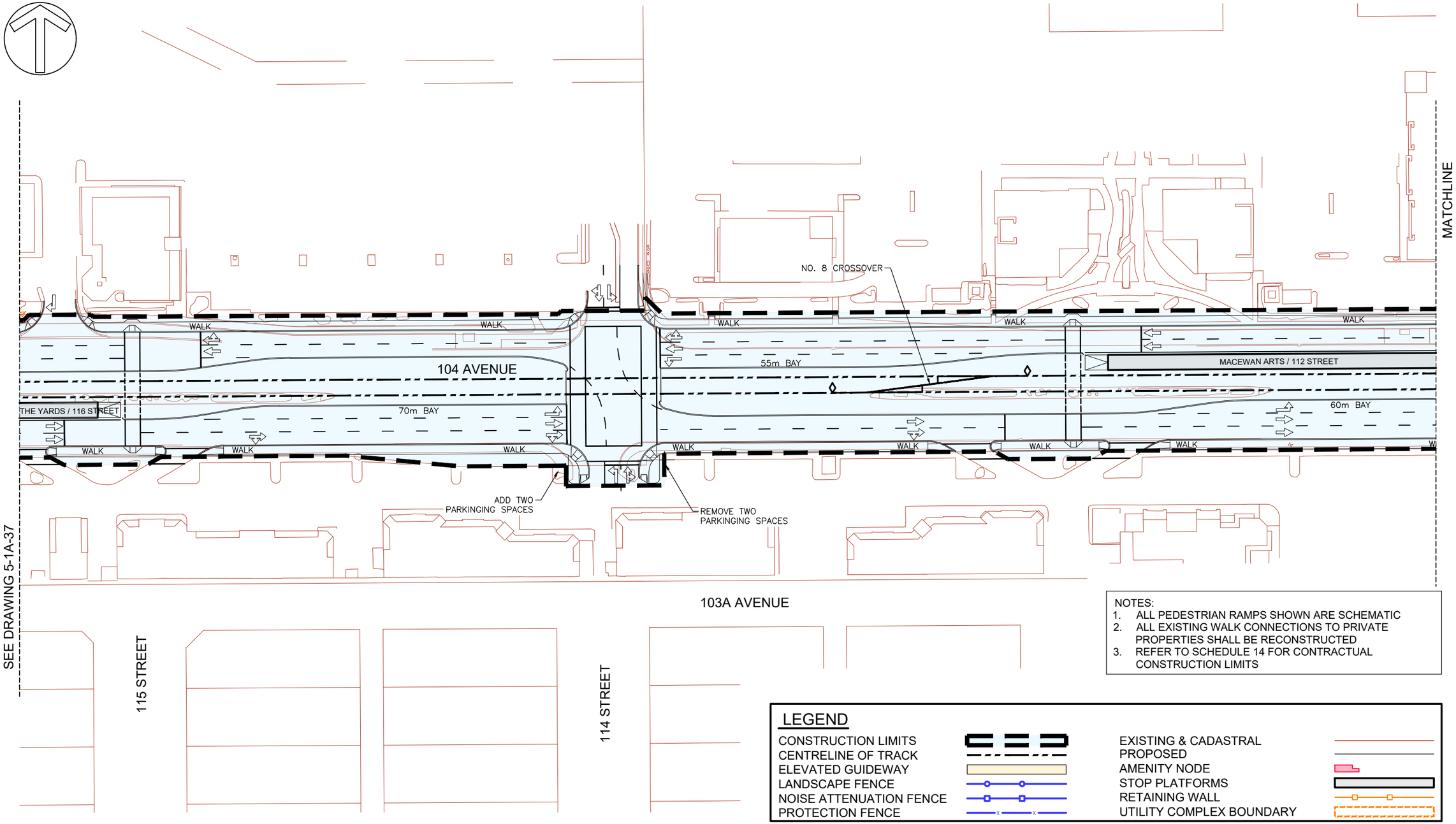
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-37



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
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3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
4	RFP V4	18-09-20	JM
3	RFP V3	23-07-20	JM
2	RFP ADDENDUM 11	23-06-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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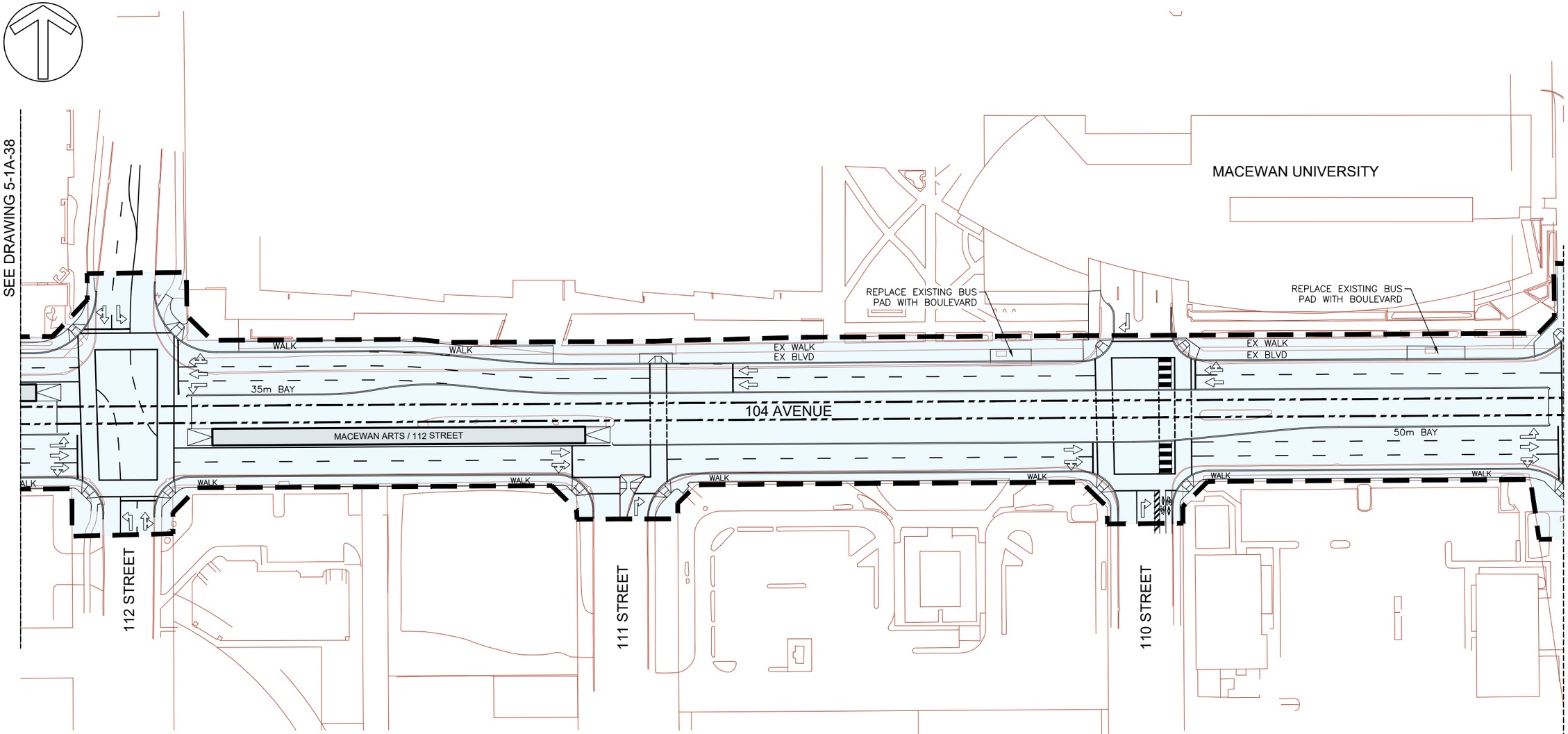
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-38

VALLEY LINE WEST LRT



LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

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no.	description	date	checked
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1	RFP V2	29-05-20	JM
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	revisions		

DRAWING SCALE
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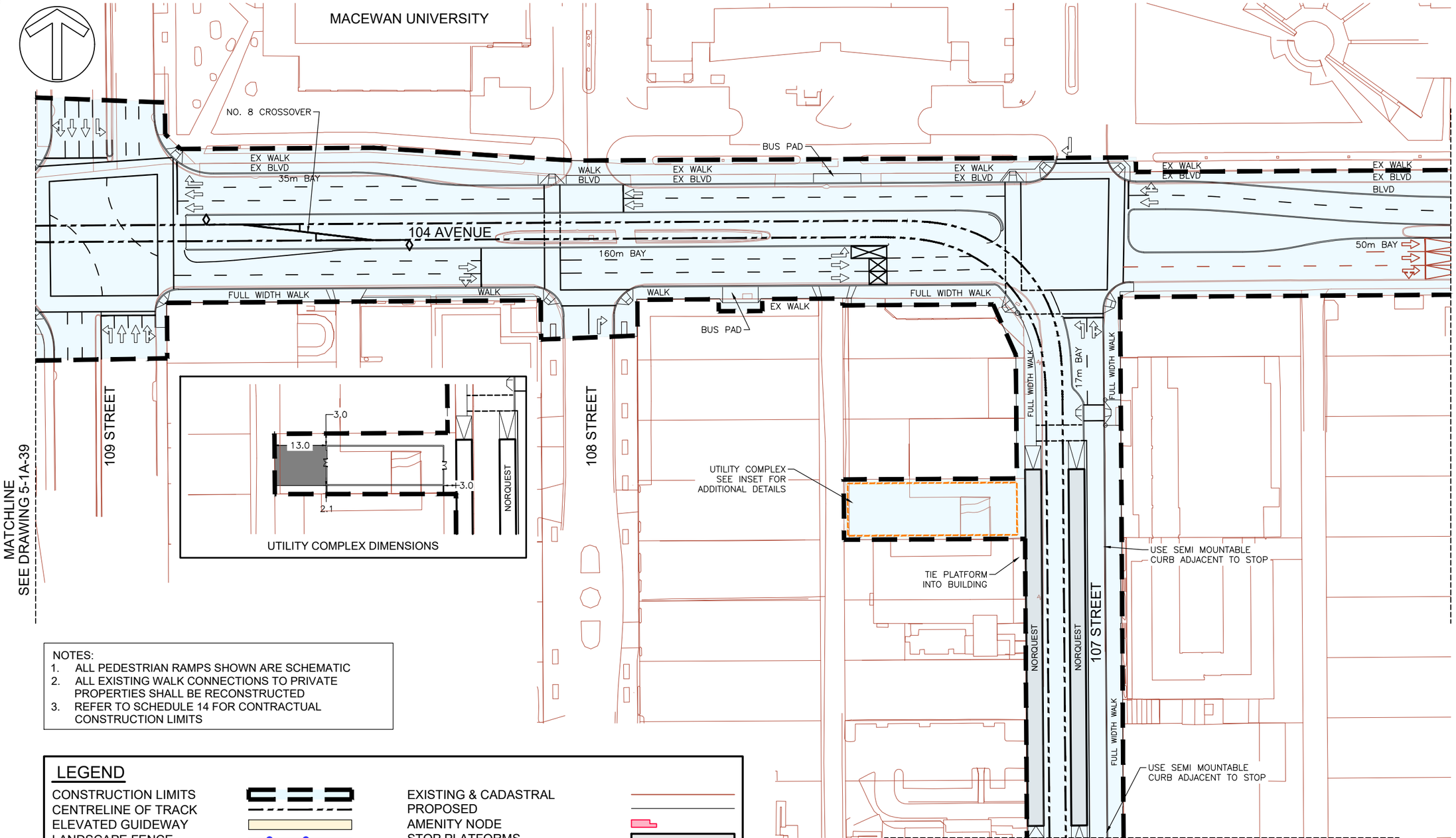
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-39

VALLEY LINE WEST LRT



NOTES:
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LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
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- AMENITY NODE
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no.	description	date	checked
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-40

VALLEY LINE WEST LRT

MACEWAN UNIVERSITY

BUS PAD

EX WALK
EX BLVD
BLVD

EX WALK
EX BLVD
BLVD

104 AVENUE

106 STREET

105 STREET

104 STREET

MATCHLINE
SEE DRAWING 5-1A-40

VALLEY LINE WEST LRT

NOTES:
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LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
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NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
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ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-41

MATCHLINE
SEE DRAWING 5-1A-43

MATCHLINE
SEE DRAWING R-1A-40

103 AVENUE

102 AVENUE

107 STREET

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

FULL WIDTH WALK

TURNAROUND

DELINEATION BETWEEN BIKE LANE AND WALK

NO CURB BETWEEN FIRE LANE AND TRACKWAY

FIRE STATION #2 ACCESS

FIRE LANE

NO. 6 CROSSOVER

NORQUEST COLLEGE

VALLEY LINE WEST LRT

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

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	revisions		
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2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
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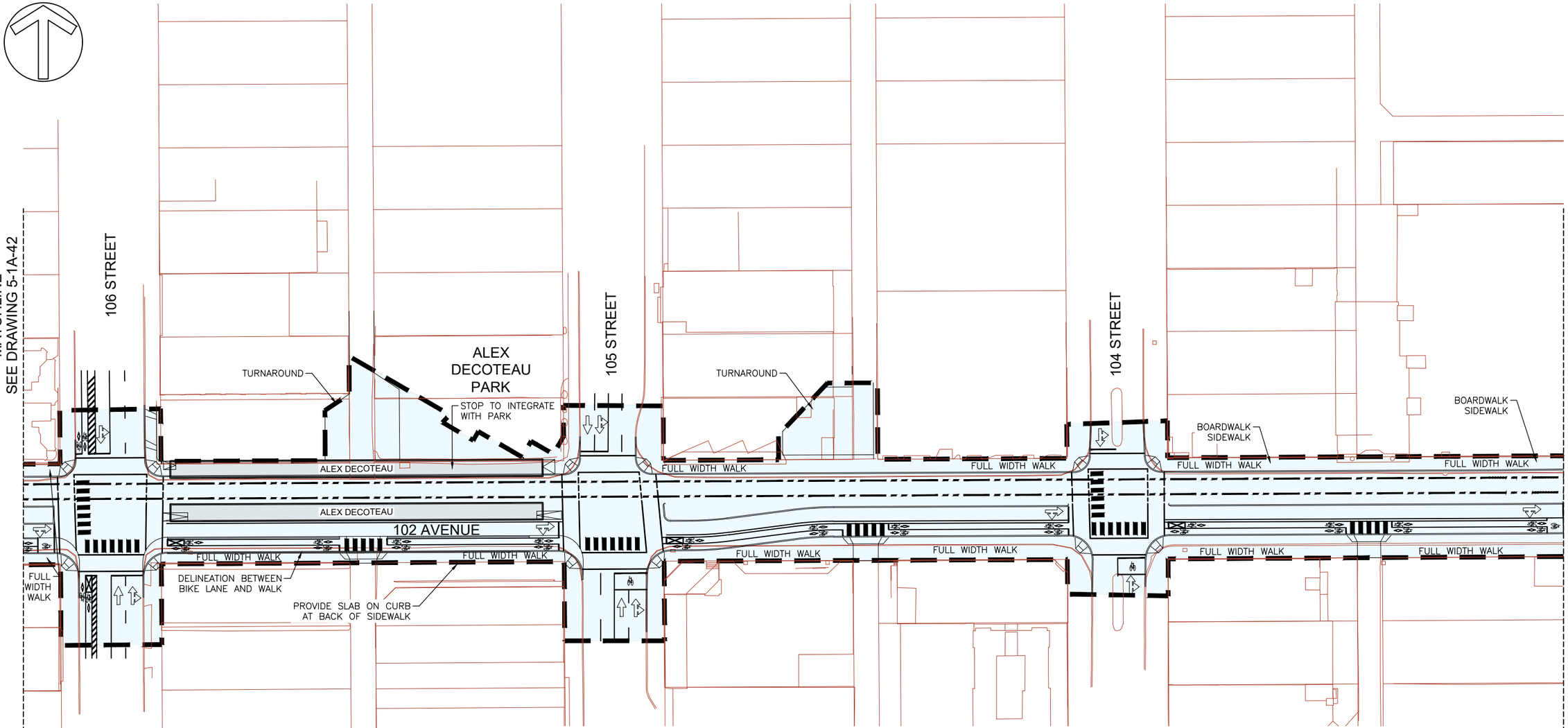
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-42



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3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS

LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- ELEVATED GUIDEWAY
- LANDSCAPE FENCE
- NOISE ATTENUATION FENCE
- PROTECTION FENCE
- EXISTING & CADASTRAL
- PROPOSED
- AMENITY NODE
- STOP PLATFORMS
- RETAINING WALL
- UTILITY COMPLEX BOUNDARY

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:1000m 0 10 30 50m

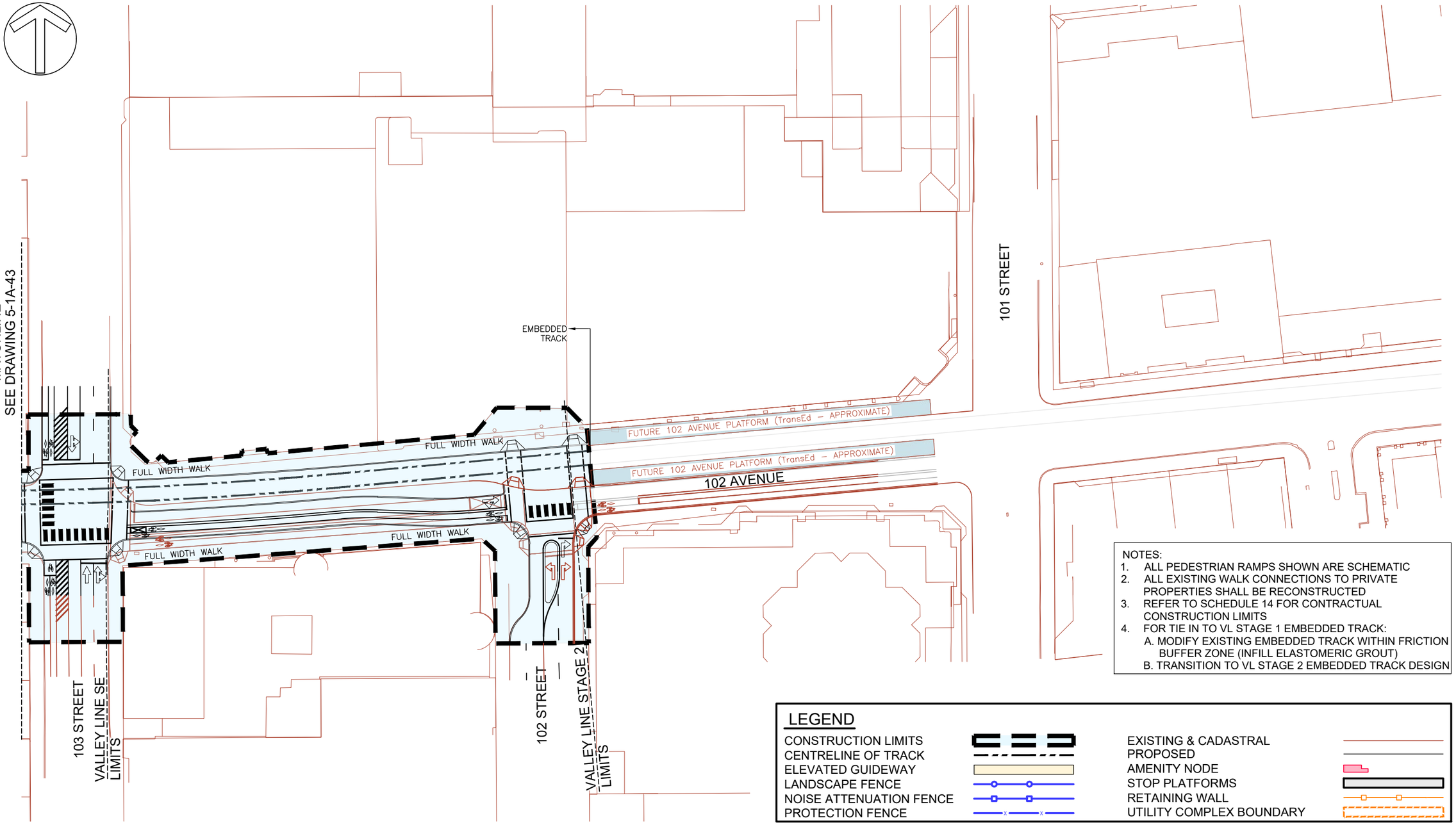
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-43

VALLEY LINE WEST LRT



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
4. FOR TIE IN TO VL STAGE 1 EMBEDDED TRACK:
   A. MODIFY EXISTING EMBEDDED TRACK WITHIN FRICTION BUFFER ZONE (INFILL ELASTOMERIC GROUT)
   B. TRANSITION TO VL STAGE 2 EMBEDDED TRACK DESIGN

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE		UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
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1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:1000m 0 10 30 50m

NOT FOR CONSTRUCTION

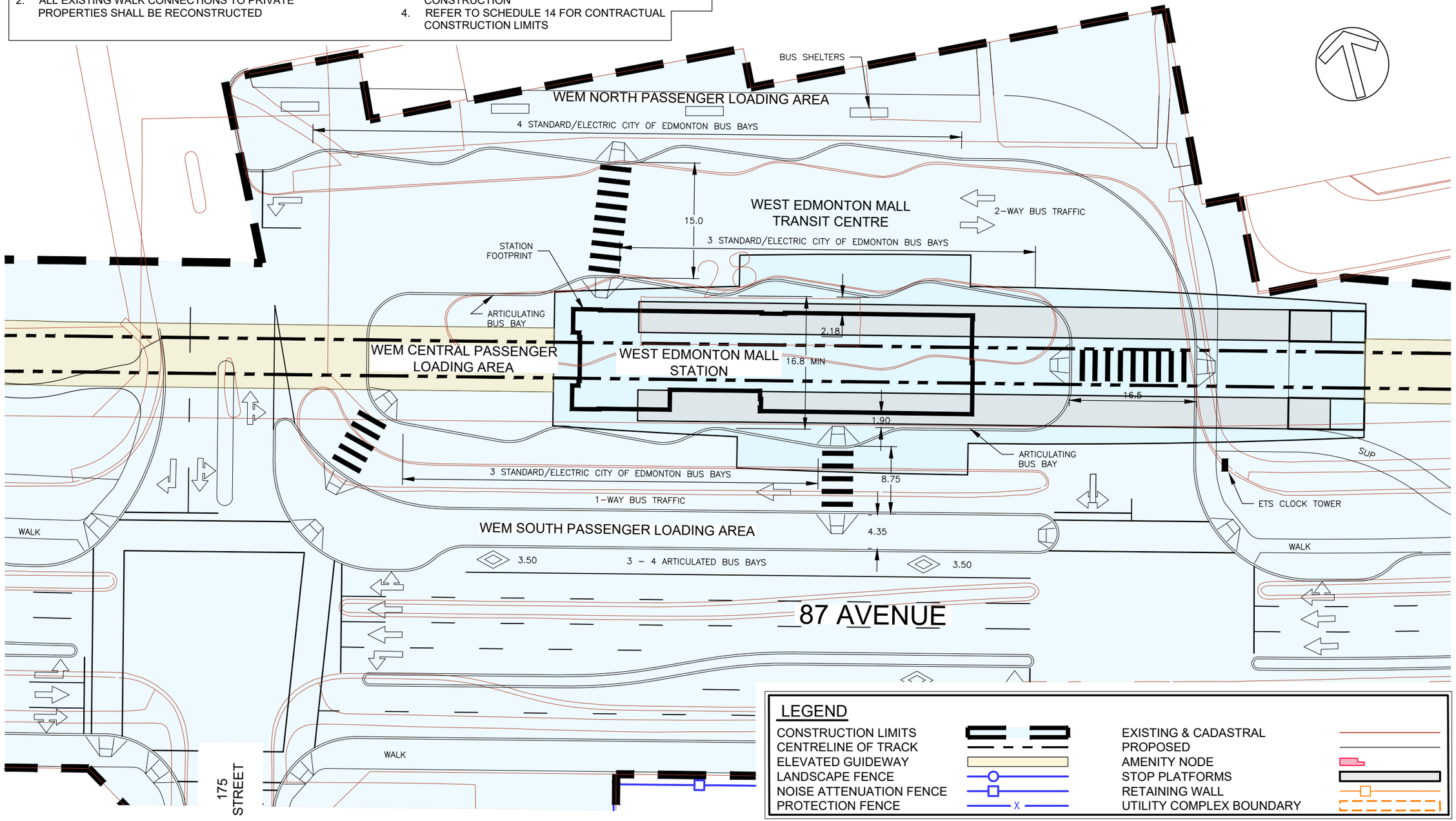
AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering and Land Services
MOTT MACDONALD

VALLEY LINE WEST LRT

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-44

NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. FENCES ARE SHOWN TO INDICATE LENGTH. EXACT PLACEMENT WILL BE DETERMINED DURING CONSTRUCTION
4. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS



LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ELEVATED GUIDEWAY		AMENITY NODE	
LANDSCAPE FENCE		STOP PLATFORMS	
NOISE ATTENUATION FENCE		RETAINING WALL	
PROTECTION FENCE	X	UTILITY COMPLEX BOUNDARY	

no.	description	date	checked
	revisions		
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM

DRAWING SCALE
1:500m 0 5 15 25m

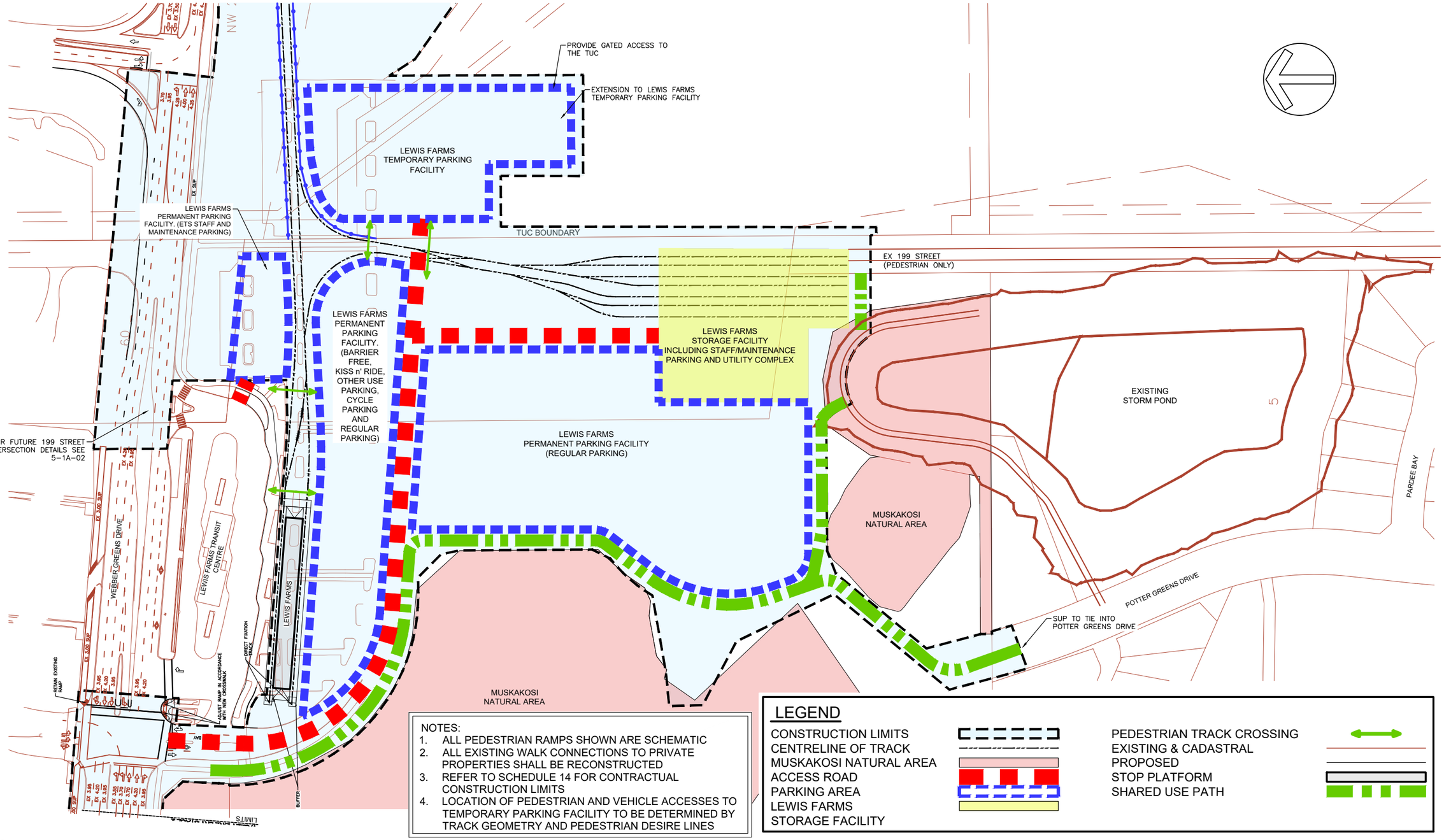
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
ISL Engineering
DIALOG
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-45

VALLEY LINE WEST LRT



NOTES:
1. ALL PEDESTRIAN RAMPS SHOWN ARE SCHEMATIC
2. ALL EXISTING WALK CONNECTIONS TO PRIVATE PROPERTIES SHALL BE RECONSTRUCTED
3. REFER TO SCHEDULE 14 FOR CONTRACTUAL CONSTRUCTION LIMITS
4. LOCATION OF PEDESTRIAN AND VEHICLE ACCESSES TO TEMPORARY PARKING FACILITY TO BE DETERMINED BY TRACK GEOMETRY AND PEDESTRIAN DESIRE LINES

LEGEND

- CONSTRUCTION LIMITS
- CENTRELINE OF TRACK
- MUSKAKOSI NATURAL AREA
- ACCESS ROAD
- PARKING AREA
- LEWIS FARMS STORAGE FACILITY
- PEDESTRIAN TRACK CROSSING
- EXISTING & CADASTRAL
- PROPOSED
- STOP PLATFORM
- SHARED USE PATH

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
0 20m 60m 100m
1:2000m

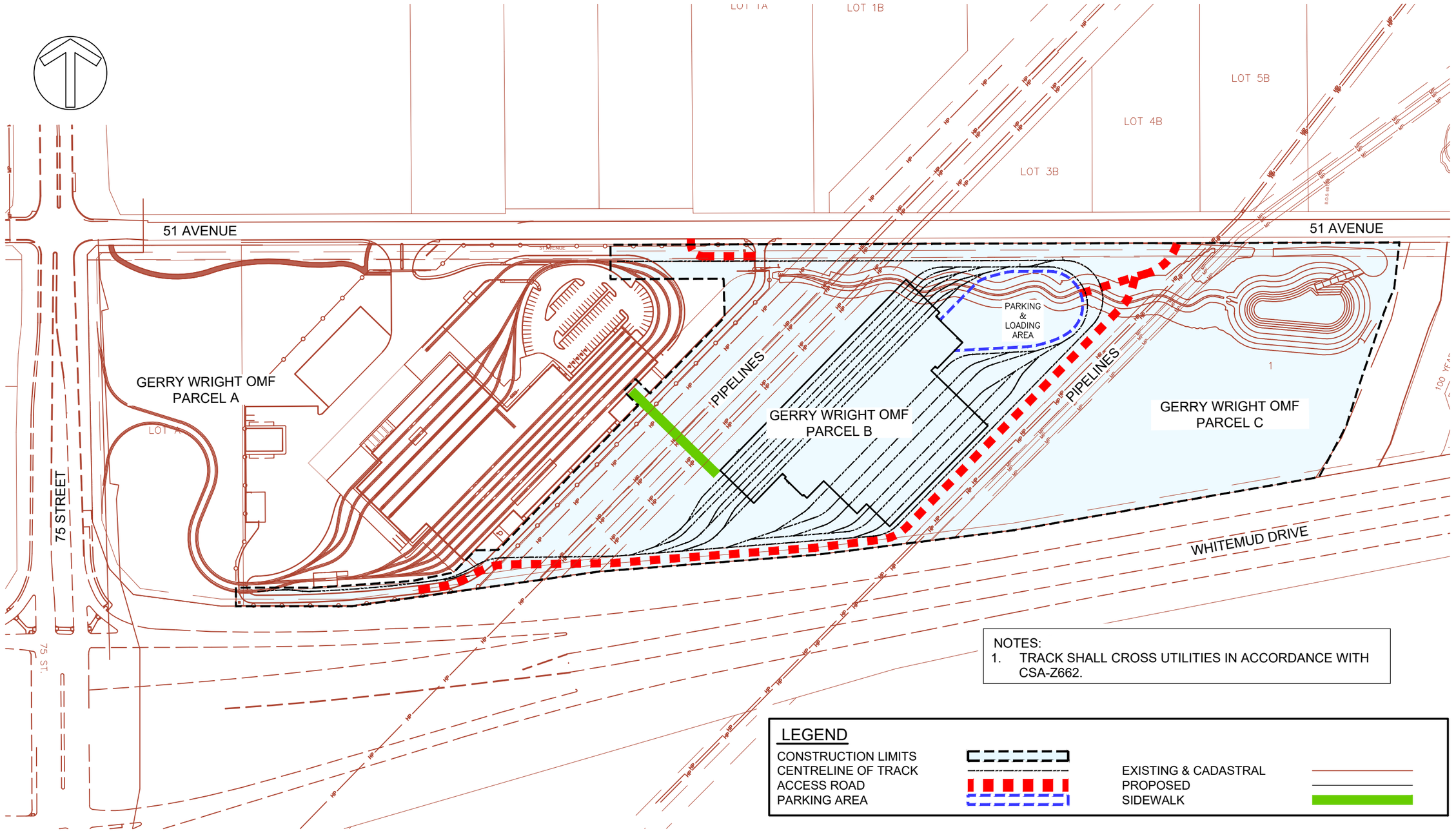
NOT FOR CONSTRUCTION

AECOM Prime Consultant
Edmonton
HATCH
DIALOG
ISL Engineering
MOTT MACDONALD

PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-46

VALLEY LINE WEST LRT



NOTES:
1. TRACK SHALL CROSS UTILITIES IN ACCORDANCE WITH CSA-Z662.

LEGEND

CONSTRUCTION LIMITS		EXISTING & CADASTRAL	
CENTRELINE OF TRACK		PROPOSED	
ACCESS ROAD		SIDEWALK	
PARKING AREA			

no.	description	date	checked
3	RFP V4	18-09-20	JM
2	RFP V3	23-07-20	JM
1	RFP V2	29-05-20	JM
0	RFP	14-02-20	JM
	revisions		

DRAWING SCALE
1:2500m 0 25 75 125m

NOT FOR CONSTRUCTION

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Edmonton
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PROJECT DESCRIPTION DRAWINGS

DRAWING NO: 5-1A-47

VALLEY LINE WEST LRT

APPENDIX 5-1B
Traffic Accommodation Request Form

Traffic Accommodation Request (TAR) Form **TAR No. _____**

GENERAL INFORMATION:

Requestor Name:

Requestor Email: Requestor phone#:

Date:

TRAFFIC IMPACT:

Description: (identify type of closure, location and lanes/Roadways/sidewalks/SUPs affected)

REQUEST DETAILS:

Description (identify type of construction activity to be performed):

WORK PLAN FOR TRAFFIC MANAGEMENT AND TIMING OF WORK:

Description: (the date and timing for the set-up(s), take-down(s), reconfiguration(s) of the Transportation Closure)

IMPACTS TO PEDESTRIANS, BICYCLE TRAFFIC, :

Description: (describe closures and alternate routes)

ATTACHMENTS:
Description: (include TAP and any other information)

PROJECT CO ON-SITE DESIGNATES:
Description: (contact details of the Project Co Person responsible for implementation and monitoring of the traffic accommodation) Identify a Project Co person(s) responsible to assist Emergency Services personnel responding to an incident within a Site

ACCEPTANCE (TO BE COMPLETED BY CITY OF EDMONTON):
Course of Action: ☐ Accepted ☐ Resubmit ☐ Declined **Comments:** **City of Edmonton Representative:** Sign: Print: Date:

APPENDIX 5-1C NOT USED

APPENDIX 5-1D
Operability and Maintainability Parameters

INTRODUCTION

This Appendix 5-1D [*Operability and Maintainability Parameters]* sets out the concept of operations and maintenance that shall be used by Project Co to Design and Construct the Valley Line LRT Stage 2.

WAYSIDE EQUIPMENT MAINTENANCE

(a) Maintenance on Wayside Equipment will be completed in accordance with a preventative maintenance program to ensure that all Equipment is ready for use and in state of good repair.

LRT OPERATIONS

This section sets out the parameters for the contiguous operation of the Valley Line LRT that the Operator will follow, and that Project Co shall use to design the Infrastructure.

LRT NETWORK GENERAL HOURS OF OPERATION

(a) At a minimum, Trains will operate in Passenger Service, stopping at each Stop and Station, continuously between the hours set out in Table 1. Timetables may include departures beyond these minimum Passenger Service hours, or additional departures from the city centre, as required for service start up and shut down.

Table 1 – Operating Hours

	Monday to Friday	Saturday	Sunday and Holidays
Lewis Farms			
First Train departs	04:55	05:00	05:00
Last Train departs	00:45	00:45	00:15
Mill Woods Town Centre			
First Train departs	05:00	05:00	05:00
Last Train departs	00:45	00:45	00:15

(b) Trains in Passenger Service will operate in accordance with the Operating Headways listed in Table 2.

(c) Engineering hours are hours outside the operating hours as outlined in Table 1 [*Operating Hours*]. Engineering hours for the Valley Line LRT Stage 1 will be 02:00 to 04:45 Monday to Saturday. Sundays and Alberta statutory holidays will be 01:30 to 04:50. The engineering hours described begin when all revenue and deadhead service has ceased and LRVs are clear of Mainline.

(d) The Valley Line LRT in full operation is expected to have engineering hours from 02:00 to 04:10 Monday to Saturday. Sundays and Alberta statutory holidays will be 01:15 to 04:15.

Table 2 - Operating Headways

Period/Event	Time Period	Weekday	Saturday	Sunday
AM Peak	05:00 – 09:00	5 mins	10 mins	15 mins
Mid-Day	09:00 – 14:00	10 mins	10 mins	15 mins
PM Peak	14:00 – 19:00	5 mins	10 mins	15 mins
Evenings	19:00 – 22:00	10 mins	10 mins	15 mins
Late Night	22:00 – 01:00[1]	15 mins	15 mins	15 mins
Single Tracking	All	15 mins	15 mins	15 mins

Note 1: Operating Hours on Sundays/Holidays ends at 00:15

PRINCIPLES OF OPERATION

(a) The Infrastructure will be normally operated as a right-hand running system, on a Line-of-Sight basis.

(b) Line-of-Sight operations will consider Sighting Distances and Driver Reaction Times.

(c) The typical minimum Dwell Time at each Stop and Station is twenty (20) seconds.

(d) The Driver of the train is responsible for the vehicle speed, keeping safe distance between LRV's, stopping for lights, pedestrians and emergency vehicles unless operating rules dictate otherwise. The Driver is required to understand and follow the aspects of the governing signals and switch point indicators of an interlocking; failure to follow indications with a correlating speed could lead to derailment, collisions, etc.

(e) The Operator is responsible for operating a central Operations Control Centre, from which it will:

(i) manage the scheduling of all Trains;

(ii) oversee, monitor and control all On-track Vehicle movements operating on the Trackway, including:

1. managing all train movements on mainline and all interlocking activities to ensure there are no conflicting On-track Vehicle movements; and

2. movement of the switches for On-track Vehicle and correctly setting the governing signals;

(iii) issue operational restrictions to protect Persons and Equipment from emergent conditions on the Trackway which may impact safety;

(iv) issue track warrants, or other means of protection appropriate to the work being undertaken, to persons that require occupancy of the Trackway for inspections and Maintenance of the Valley Line LRT or for any other reason;

(v) optimize Train operations during passenger service disruptions;

(vi) dispatch Operator Persons to perform remedial actions in response to failures within the Valley Line LRT;

(vii) provide support of help desk activities;

(viii) coordinate interactions between all Operator Persons engaged in performing operations and maintenance of the Valley Line LRT or other infrastructure in close proximity to the Valley Line LRT;

(ix) monitor and respond to all security alarming, including door intrusion detection and security motion detection in accordance with the Operating Period Security Program;

(x) communicate with the City, Emergency Services and other persons as necessary to:

1. organize and direct responses to failures and emergencies;

2. coordinate Valley Line LRT activities with Emergency Services personnel;

3. coordinate system operations with the City during passenger service disruptions;

(xi) provide information to Passengers during normal operations, failures and in emergencies;

(xii) monitor and operate the Traction Power System by means of the Traction Power SCADA system;

(xiii) operate the Building SCADA system to centrally monitor and respond to conditions within the Building Structures;

(xiv) monitor and coordinate Valley Line LRT access requirements for Operator Persons, City Persons and third parties as required from time to time;

(xv) monitor and log the operational performance of the Valley Line LRT; and

(xvi) perform all other roles and duties identified in the system safety program for the Valley Line LRT.

(f) All movement through the Gerry Wright OMF will be coordinated by the Yard Control System which is located in Gerry Wright OMF Building A. Switches in the yard can be electronically thrown from the Yard Operation Control Center. These switches can be thrown individually for maintenance purposes. There are 16 switches in the Gerry Wright OMG Part A yard. Fifteen of the switches are dual control with switch position indicators (SPI). All Yard Track switches should send an indication back to the yard controller that there has been a switch trailed. Yard Track switches shall be kept clear of snow and ice, and storage areas for snow must be provided to allow yard operations to continue uninterrupted. A delineation point shall be clearly identified between the yard and the mainline where trains must wait to enter mainline operations. The delineation point shall be placed where the Train does not foul any switches in the yard or Trains coming offline to the Yard Track.

(g) All movement through the Lewis Farms Storage Facility yard will be coordinated with the OCC Controllers. All switches in the Yard Track can be electronically thrown from the Lewis Farms Storage Facility Yard Control System and future ICS. These switches can be thrown individually for maintenance purposes. All Yard Track switches should send an indication back to the yard controller that there has been a switch trailed. A Train may

not leave the Lewis Farms Storage Facility for mainline entry until there is a route in place to Lewis Farms Stop.

SPECIAL EVENT SERVICE

(a) In the Infrastructure Design and Construction, Project Co shall account for the potential of special event service that may lead to longer periods of more intense service and/or extended operating hours.

MULTIMODAL STATIONS AND BUS INTEGRATION

(a) The Valley Line LRT Stage 2 alignment will have three multimodal Stops or Stations (Lewis Farms Stop, West Edmonton Mall Station and Jasper Place Stop) while the Valley Line LRT Stage 1 will include two multimodal Stops or Stations (Davies Stations and Mill Woods Stop). These Stops or Stations are where further connections can be made to other modes of transportation including bus service, pedestrian and bicycle accommodations The LRT and bus schedules will be coordinated to reduce customer delay.

ATYPICAL OPERATIONS

(a) The Infrastructure shall be robust and have mitigation measures that will mitigate the impact on Passenger Service of:

(i) Infrastructure and Equipment failures;

(ii) accidents and emergency incidents;

(iii) unplanned Track closures;

(iv) performance of Maintenance activities; and

(v) any other event that interrupts or disrupts Passenger Service.

EMERGENCY SERVICES ACCESS

(a) The Operator will need to come to an agreement with Emergency Services as to how Emergency Services will communicate the need to access the Trackway, should they need to get around a traffic back up or obstruction in the constrained corridors (one lane of traffic parallel to the trackway) where rolled curbs are provided between the Roadway and Trackway.

(b) LRV drivers will be required to stop at traffic intersections, or other applicable locations, to allow emergency services vehicles to pass. The design of the intersections must allow for adequate sightlines for the Driver of the Train so they can stop in advance of the roadway.

(c) Direct access to vehicles storage and Vehicle Maintenance bays by Emergency Response will be via the concrete apron at the entry ways to the bays. (minimum of 10 m from doors)

FLEET SIZE

(a) The Valley Line LRT Stage 2 fleet size will include 40 LRVs.

(b) The Valley Line LRT Stage 1 fleet size will include 26 LRVs.

(i) The Valley Line LRT Stage 1 ultimate service with five (5) minute headways and two-car Trains will result in 13 two-car Trains in operation.

(c) The full Valley Line LRT ultimate service with five (5) minute headways and two-car Trains will result in 30 two-car Trains in operation.

MAINTENANCE PHILOSOPHY

(a) The Maintenance regime will be based on the Operator performing Maintenance Level 1 and 2, with Maintenance Level 3 being outsourced.

(i) Level 1: Maintenance practices and activities that occur on the Infrastructure directly itself. This includes vehicle cleaning and servicing, mechanical adjustments or replacement of a line replaceable units (LRUs). The intent of this level of Maintenance is to return the Infrastructure to revenue service in the shortest time possible.

(ii) Level 2: Maintenance practices and activities that involve repair of a subsystem off-line, often on a workbench or in an area with Equipment specific to the repair being carried out. An example of this would be corrective Maintenance of an LRU through the fault-finding and eventual replacement of a lowest line replaceable unit (LLRU) or subcomponent such as a circuit board. The intent of this level of Maintenance is to repair, or overhaul an LRU so that it may be placed back into the inventory stock pool such that it can be used during Level 1 Maintenance activities.

(iii) Level 3: Maintenance practices and activities that are either not practical for the local Maintenance area, require specialist skills or equipment, or are carried out so infrequently that it is not economical to maintain the competence level required. Typically, this would be overhauls, refurbishment and renewals of LRUs (e.g. relays, PCB or motor rewinding). Some overhauls and renewals will be carried out while the Infrastructure is in operation (e.g. track renewals or wholescale replacement of a sub-system such as CCTV).

(b) Operational flexibility within the Design of the Valley Line LRT Stage 2 must be considered to facilitate off-peak inspections and Maintenance.

LRV MAINTENANCE

(a) Maintenance, storage and cleaning of LRVs will be performed at the Gerry Wright OMF Building B.

(b) Cleaning and storage of LRVs will be performed at Lewis Farms Storage Facility.

(c) LRVs will be washed a minimum of once a day in the winter months.

TRACK MAINTENANCE

Design the Infrastructure to permit the operations to be carried out when the following Maintenance regime is in place:

INSPECTIONS

(a) Rail inspections will be completed twice per week and any faults found will be repaired at the earliest possible convenience while not interfering with revenue service unless it is emergent.

(b) An annual ultrasound survey will be carried out and any faults repaired through routine maintenance unless emergent.

(c) Track geometry will be measured of the whole system annually with additional frequency on curves increasing with rate of wear.

(d) Rail greasers, if provided, will be inspected twice per week for accuracy of grease distribution, quantity and cleanliness of railhead dispensers.

(e) Switch turnout inspections will be completed once per week. Turnouts will be inspected for switch machine defects, such as lubrication levels, throw rod condition, switch point condition, switch heating system, switch point wear, and diamond wear in locations where applicable.

(f) The switches will be thrown daily, and examinations of switch points will be completed once per week. Any debris or ice will be removed when switch inspections are done and any drainage or catch basins will be cleared of debris to ensure that switches are free from ice build-up or flooding.

(g) Inspections will be performed during off peak hours when single tracking can be utilized if necessary.

SNOW REMOVAL

(a) In constrained corridors, snow removal will be coordinated with the adjacent roadways and any public sidewalks. Due to the constrained area, the snow must be removed from site immediately as no storage areas will be available.

(b) In turnout locations, snow clearing will be done to keep the switch points clear.

(c) All road crossings and embedded sections will require flangeway clearing after a heavy snowfall or accumulation of drifting snow to prevent LRV climbing.

BROKEN RAIL

(a) Any rail breaks will be considered an emergent situation. Slow Orders will be placed by a qualified track Maintenance person and will not be removed until the broken rail is repaired.

RAIL GRINDING

(a) A preventative maintenance program will be in place to profile the rail so that undue wear is avoided, and ride quality is maintained. Rail will be ground on an as needed basis.

LRT CORRIDOR CLEAN-UP

(a) LRT Corridor clean-up will be performed twice per week. Any noxious weeds must be removed in accordance with City By-laws.

SIGNALS MAINTENANCE

INSPECTIONS

(a) Inspections of wayside signals Equipment will be completed weekly.

TRACTION POWER SYSTEM MAINTENANCE

(a) During heavy frost an LRV will continue to run during engineering hours (i.e. non-revenue service hours) to prevent frost build up on the contact wire. An LRV with a frost scraping pantograph carbon may also be run the length of the alignment prior to revenue service to remove frost and prevent arcing on the contact wire. This special pantograph will not be used in regular service.

INSPECTIONS

(a) Ground level walking OCS inspection will be carried out once every four (4) weeks counterweights, traction power poles, isolation breakers, wayside switchgear, and catenary hardware such as guide wires, hangers, and insulators.

(b) Wire height OCS inspections will be completed every six (6) months and will include contact wire measurement, counterweights, traction power poles, isolation breakers, wayside switchgear, and catenary hardware such as guide wires, hangers, and insulators.

(c) A survey of OCS contact wire heights and staggers will be carried out annually.

WAYSIDE EQUIPMENT MAINTENANCE

(a) Wayside Equipment failures will be dealt with on an emergent basis to prevent teardowns and to ensure Infrastructure availability prioritised against a criticality level assessed using the RAMS data.

TRACTION POWER SUBSTATION MAINTENANCE

(a) Substation inspections will be completed every six (6) months. All transformers, rectifiers, and switching gear will be inspected at the same time.

(b) All major UPS will be tested annually.

(c) The emergency trip system will be tested annually.

FACILITIES MAINTENANCE

INSPECTIONS

(a) All Stops and Stations will be inspected daily for any deficiencies that could pose a potential danger to the public.

STOP AND STATION SNOW CLEARING

(a) Calcium chloride, salt, sand and gravel will be applied to Stops and Stations to prevent ice build-up.

(b) Snow clearing will start within one hour of snow fall and be maintained throughout the snowfall so that no significant (10 cm) amount of snow accumulation can occur. This will also include any platform area or sidewalks associated with stations.

STATION CLEANLINESS

(a) The Stations, including washrooms, will be cleaned three times per day, including removal of all garbage and recycling from waste receptacles and any debris/litter.

(b) Windows will be cleaned once per week or on an as-needed basis due to unforeseen/emergent situations.

(c) Platform areas in stations will be washed daily, weather permitting.

(d) Any spills reported will be cleaned within 2 hours of receiving the report.

(e) Any biohazard conditions reported will be cleaned immediately, with the area roped off and performed by a qualified biohazard removal specialist.

(f) If graffiti is offensive it will be covered within 12 hours unless on a Stop or Station when it will be covered within 4 hours. If it is not offensive, it will be removed within 48 hours of receiving the report.

GENERAL STATION REPAIR

(a) Upon inspection and reporting of any damage to a Station, damage that is deemed to be a danger to the public will be roped off and protected. Repairs will be done immediately. If there is no danger to the public, a 24-hour timeframe to complete repairs is acceptable.

COMMUNICATIONS SYSTEM MAINTENANCE

INSPECTIONS

(a) All life safety systems will be inspected or tested based on the preventative Maintenance program to ensure Infrastructure availability and in accordance with statute and building codes and standards.

(b) Vault inspections will be completed bi-annually.

(c) The PA/VMS system will be tested weekly to ensure that in case of emergency the system will function as designed.

(d) CCTV, TVMs and Emergency Call stations will receive a daily functional check.

WAYSIDE EQUIPMENT MAINTENANCE

(a) Any Wayside Equipment that has been identified as damaged or reported as not working properly will be fixed and, if considered as emergent, may be repaired during revenue service.

OCC SYSTEMS

(a) Any OCC equipment that has been identified as damaged or defective will be fixed and considered as an emergent situation.

EMERGENCY CALL STATIONS / CCTV

(a) Any failure that has been reported for either Emergency Alarm Station or CCTV cameras will be considered emergent and fixed immediately.

(b) Any failure that has been reported for either the PA or the VMS will be considered emergent and fixed immediately.

PERFORMANCE MONITORING AND REPORTING SYSTEM

(a) In accordance with Section 13 *[Integrated Control System (ICS) Integration Ready]* of Schedule 4 *[Design and Construction Protocols],* the City and Operator will be installing an ICS. The output data from various systems will be reported through the ICS and will be used for Performance Monitoring, to track information about the Infrastructure, and will be used during the Performance Demonstration Period.

(b) The reporting system will be as automated as possible to avoid manual data entries. The information will be accessible to all authorised personnel in a manner that it is easily configured and understood. The system will be able to;

(i) track LRV location and performance against timetable;

(ii) provide integrated control of both Traction Power SCADA and Building SCADA with;

1. an integrated prioritised notification and alarm log;

2. voice calls over telecommunications or radio;

3. the ability to designate radios and LRV's to drivers;

4. PA/VMS; and

5. CCTV;

(iii) log events (e.g. events in the day that could affect service);

1. special events;
2. delays;
3. incidents;
4. operational issues; and
5. implementation of isolation switching for maintenance;

(iv) log customer complaints (e.g. noise, ride quality);

(v) link to the asset management and fault reporting system; and

(vi) provide competence management and certification of all staff linked to asset management system.

(c) HSE infrastructure indicators will be monitored and may be reportable to the Province. These may include:

(i) Maintenance near miss and incidents;

(ii) failure near-miss and incidents;

(iii) derailments;

(iv) rail kinks or sun kinks;

(v) Infrastructure energy consumption;

(vi) environmental accidents and incidents due to failure;

(vii) deaths and injuries; or

(viii) accidents involving railway vehicles.

(d) Infrastructure indicators can provide information regarding the condition of systems and components. Failure rates and failure causes can be monitored and analysed; this will provide valuable inputs into the lifecycle costing, Performance Monitoring and Performance Demonstration.

INCIDENT MANAGEMENT

Incident management strategies which are likely to be implemented for addressing interruptions of operations while allowing flexibility for the Operator to continue revenue service shall be considered in the design of the Infrastructure. The Operator will be responsible for developing the Incident Management and Service Recovery Plan, including the service disruption protocol. Project Co shall supply the Operations Plan in accordance with Appendix 5-1D *[Operability and Maintainability Parameters]* as well as a list of incident management strategies that have been considered in the Design and Construction of the Infrastructure.

INCIDENTS IMPACTING LRV OPERATION

The following is a list of potential incidents that could impact operations.

(a) Infrastructure outages such as:

(i) failure of the Overhead Catenary System (OCS):

1. contact wire break;
2. failure of messenger wire; and
3. temperature variances causing wire tension issues;

(ii) failure of power supply to the OCS:

1. from the TPSS; and
2. issue of a utility provider;

(iii) Track defects:

1. broken rail;
2. sun kinks; and
3. gage issues;

(iv) blockage/malfunction of switches, and

(v) signalling/control systems failure.

(b) Other events that could impact operations:

(i) LRV derailments;

(ii) Trackway closure for non-LRT related events:

1. accidents involving other road users such as cyclists and pedestrians; and
2. Emergency Services response to non-LRT related events adjacent to Trackway;

(iii) LRV and/or LRT vehicle collision with other road users;

(iv) extreme weather events impacting operation;

(v) civil incidents (e.g. riots, bomb threats, explosions, labour disruptions or civil unrest);

(vi) Passenger related incidents on the vehicle or platform requiring the attendance of the Emergency Services;

(vii) vandalism;

(viii) trespassing on the Track; and

(ix) LRV failure requiring recovery.

INCIDENT RECOVERY

(a) In the event of an LRV breakdown that requires recovery, the Operator will develop a strategy to recover the vehicle and return it to the Gerry Wright OMF, or a convenient site (e.g. a terminus track or siding) to clear the line and recover the vehicle outside of peak service hours. This may require the use of the maintenance and emergency crossovers along the alignment, which allow the LRVs to cut short their trip, reverse or switch tracks.

GENERAL PERSONNEL REQUIREMENTS AND RESPONSIBILITIES

OPERATIONAL REQUIREMENTS

These are minimum personnel numbers for the Valley Line LRT as a complete 27 km low floor LRT network.

LRV OPERATORS

(a) A minimum of 70 Drivers will be required to operate the Valley Line LRT including all referenced service levels in Section 2. In the case of special events or sick leave and vacation coverage, part-time Drivers may need to be employed;

(i) the Drivers will be dispatched from Lewis Farms Storage Facility, Gerry Wright OMF Building A and Gerry Wright OMF Building B for all shifts.

(b) The Driver is responsible for the safe operation of the Train while adhering to the Rule Book and Standard Operating Procedures, and will assist with public inquiries and reporting of defects.

DISPATCH

(a) A minimum of four (4) dispatcher positions will be required, one (1) for early morning peak hour launch and one (1) for afternoon peak hour launch. These shifts will only be required during Weekdays and two (2) shifts in each facility, Lewis Farms Storage Facility and the Gerry Wright O&M. One (1) shift will be from 04:30 to 12:00 and the other from 11:30 to 19:00 hours.

(b) The dispatcher is required to ensure that all Driver shifts are covered so that Revenue Service requirements are met. This position will also be responsible for shift design, book out of special event service and ensuring that all proper documentation is maintained for the purposes of payroll and record keeping.

SCHEDULE/SHIFT DESIGN

(a) One shift designer will be responsible for creating Operator signups each year. Major responsibilities include preparing and administering the signups and producing the

supporting documents and running boards. Shift Designers prepare statistical and operational reports and distribute them to various stakeholders. Shift designers will report to the operations supervisor.

ONLINE SUPERVISORY STAFF

(a) A minimum of ten (10) line inspectors will be required for coverage of 21 hours of Revenue Service per day from 04:30 to 02:00 hours of the next day.

(b) The line inspector is responsible for ensuring all safety and operating rules are met. They are also accountable for schedule adherence, accident/incident investigation, customer relations, and Station and Stop inspections.

OPERATIONS CONTROL CENTRE (OCC) STAFF

(a) A minimum of fifteen (15) control room operators will be required for OCC coverage consisting of 24 hours/day. OCC staff will be located in the Gerry Wright OMF OCC. During peak operation times from 05:00 to 19:00 hours or during special events. There will be three (3) control room operators in the OCC not including the OCC supervisor. evenings, Saturday, Sunday and Holidays will require two (2) OCC operators

(b) The control room operator is responsible for ensuring the safe operation of the system for crews and Revenue Service Trains, monitor Train movements, set routes, operate Building Management Systems (BMS), coordinate emergency responses, document and analyze daily activities.

(c) One (1) OCC supervisor will be required per shift. The OCC supervisor will be responsible for communication with the LRT management team. Dealing with service interruptions, delegating personnel for emergency situations and supervising regular day to day duties of the OCC staff.

OPERATIONS MANAGEMENT

(a) A minimum of one (1) operations manager and two (2) general supervisor will be required during normal business hours (08:00 to 17:00). The operations manager and one (1) general supervisor will be located at the Gerry Wright OMF Building A and one (1) General Supervisor at Gerry Wright OMF Building B.

(b) The operations manager is accountable for operations and maintenance of the entire Valley Line LRT. This position will ensure all personnel are completing their duties as required, that the system is running safely, and interact with engineering staff to ensure the maintenance needs are being met. In addition, they will oversee human resources, training, the operations supervisor, engineering services, and rail safety.

(c) The general supervisor will oversee Drivers, dispatch, online supervisory staff and OCC staff. This position is responsible for the operation of the system. Duties also include the management of operations personnel.

SUPPORT STAFF

HUMAN RESOURCES

(a) One (1) human resources manager will be required to process payroll and manage personnel issues. This position will also supervise any clerical staff assigned to the human resources department. This position will be located at the existing Gerry Wright OMF Building A.

ENGINEERING SERVICES

(a) There will be a minimum of four (4) engineers, one for each discipline; traction power; track; signal system; and vehicles. Each of these positions will have the following minimum technical personnel reporting to them:

(i) 32 technicians and eight (8) supervisors reporting to the vehicles engineer;

(ii) 16 technicians reporting to the signal systems engineer;

(iii) eight (8) technicians reporting to the traction power engineer; and

(iv) 12 technicians reporting to the track engineer.

(b) These positions are also responsible for the day-to-day maintenance and engineering of their respective systems including the design and review of any modifications needed. These positions will be located at the Gerry Wright Building A and Gerry Wright OMF Building B.

TRAINING STAFF/INSTRUCTORS

(a) Six (6) training staff/instructors will be required to train Drivers and deliver specific training for employees who will be working on or interacting with the trackway and trains. Training staff/instructors will maintain records of current competency and provide refresher training and re-assessment as required. Training is delivered in the classroom, on the train, and through coaching. These positions will be located at the Gerry Wright OMF Building A and Gerry Wright OMF Building B.

RAIL SAFETY

(a) One (1) rail safety engineer and two (2) rail safety inspectors are required.

(b) The rail safety engineer will be responsible for the implementation and management of the Safety Management System (SMS) for the Valley Line LRT. This position will oversee the rail safety inspectors. These positions will be located at the Gerry Wright OMF.

(c) The rail safety inspectors will ensure that the SMS program is being followed by all employees as it pertains to them.

FACILITY MAINTENANCE

(a) One (1) facility maintenance manager will be required and will report to the general manager, the facility maintenance manager is responsible to ensure the safe and proper operation, cleaning and maintenance routines at all LRT facilities, Manage administrative support staff and/or facility maintenance employees on a daily basis.

(b) Three (3) maintenance coordinators will be responsible for preventative maintenance and advanced maintenance repairs. Assuring the building and grounds are safe and available for revenue hours of operations and will coordinate all facilities repairs, get estimates, and supervise the maintenance workers.

(c) Ten (10) maintenance workers who will all report to the three (3) maintenance coordinators.

OTHER FACILITY MAINTENANCE SUPPORT

(a) LRV cleaning staff allocation as follows:

(i) three (3) located Lewis Farms Storage Facility;

(ii) five (5) located Gerry Wright OMF Building A; and

(iii) eight (8) located Gerry Wright OMF Building B; and

(b) Three (3) stores and materials management personnel are required.

CLERICAL SUPPORT

(a) five (5) clerical staff are required to support the following;

(i) operations manager (1 clerical);

(ii) operations supervisor (1 clerical);

(iii) human resources (2 clerical); and

(iv) engineering services (1 clerical).

(b) These positions are to provide administrative support to their respective managers/areas during regular business hours (08:00 to 17:00).

APPENDIX 5-1E
Gerry Wright OMF West Utility ROW Construction Equipment Loads

INTRODUCTION

This Appendix 5-1E [*Gerry Wright OMF West Utility ROW Construction Equipment Loads]* sets out the equipment that leads to loading effects on the Gerry Wright OMF West Utility ROW pipelines which loading effects shall not be exceeded during the Construction of the Infrastructure.

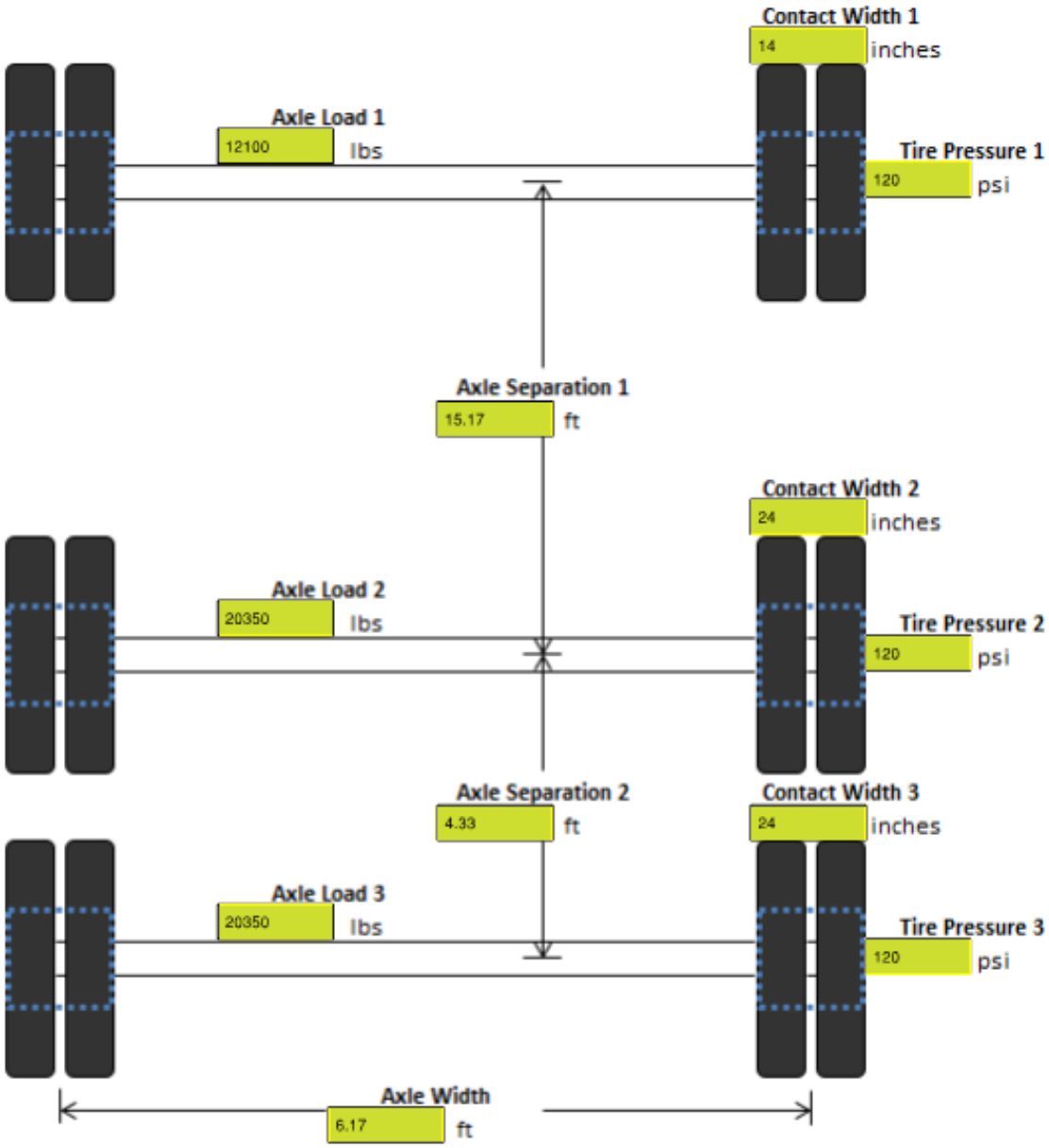

Figure 5-1E.1: Tandem Gravel Truck (Loaded)

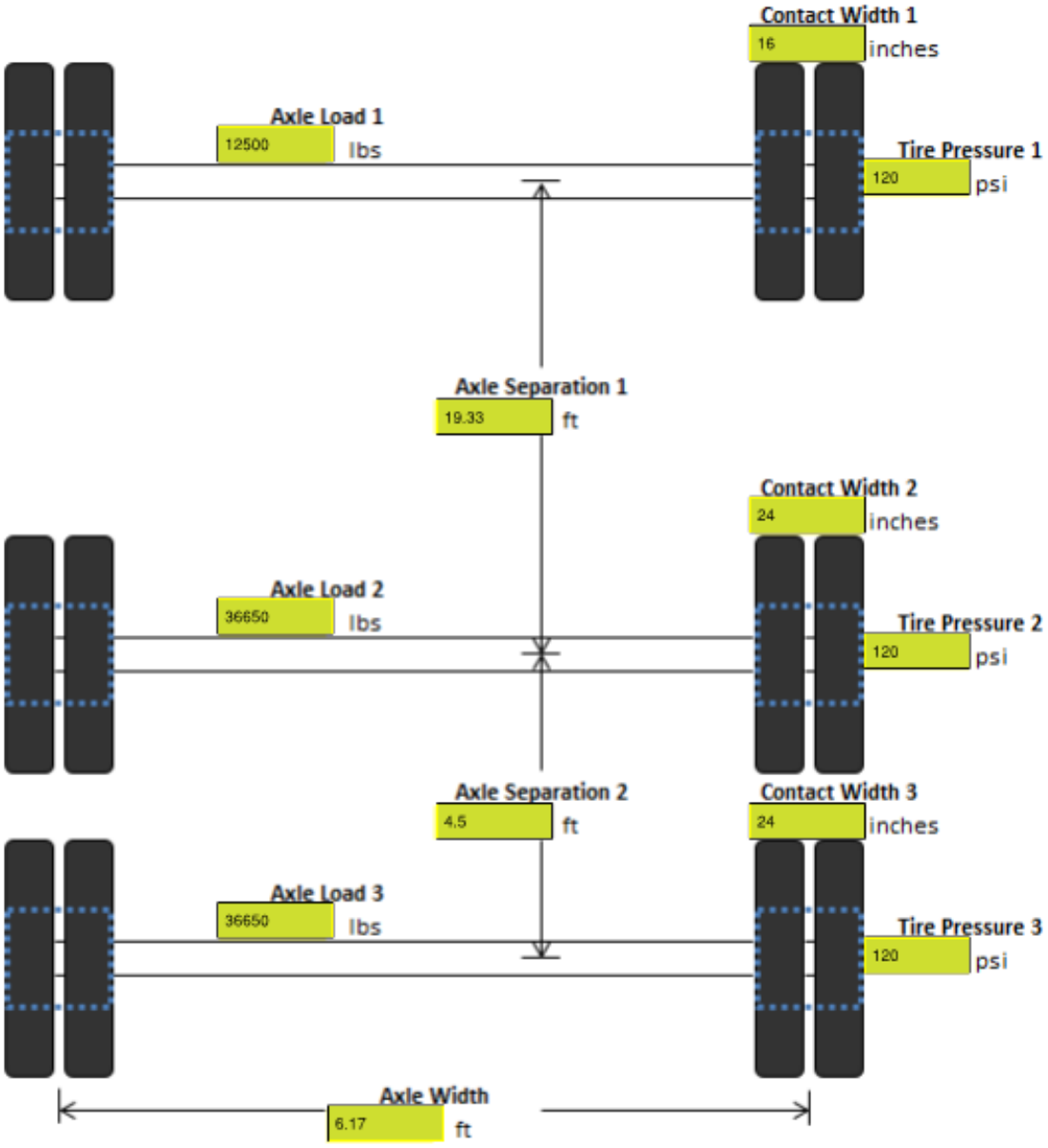

Figure 5-1E.2: Tandem Picker Truck (Loaded)

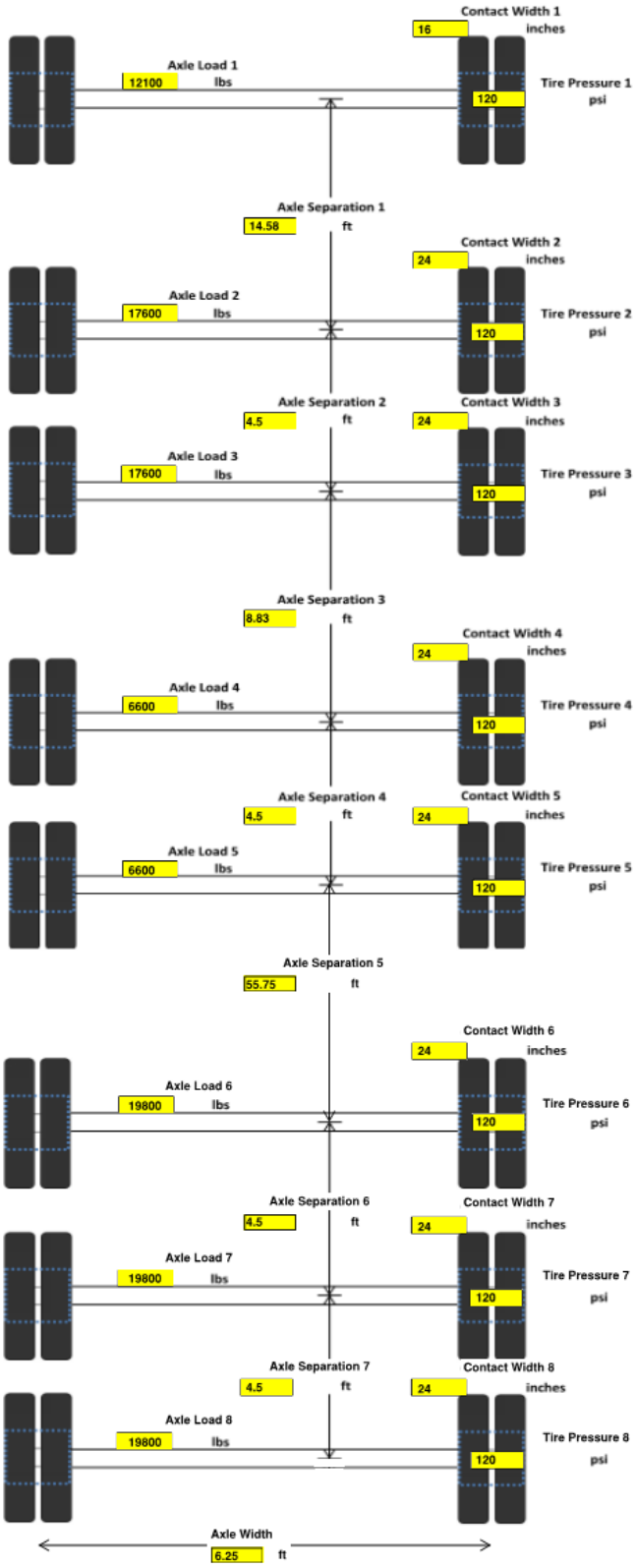

Figure 5-1E.3: Girder Delivery Truck and Trailer

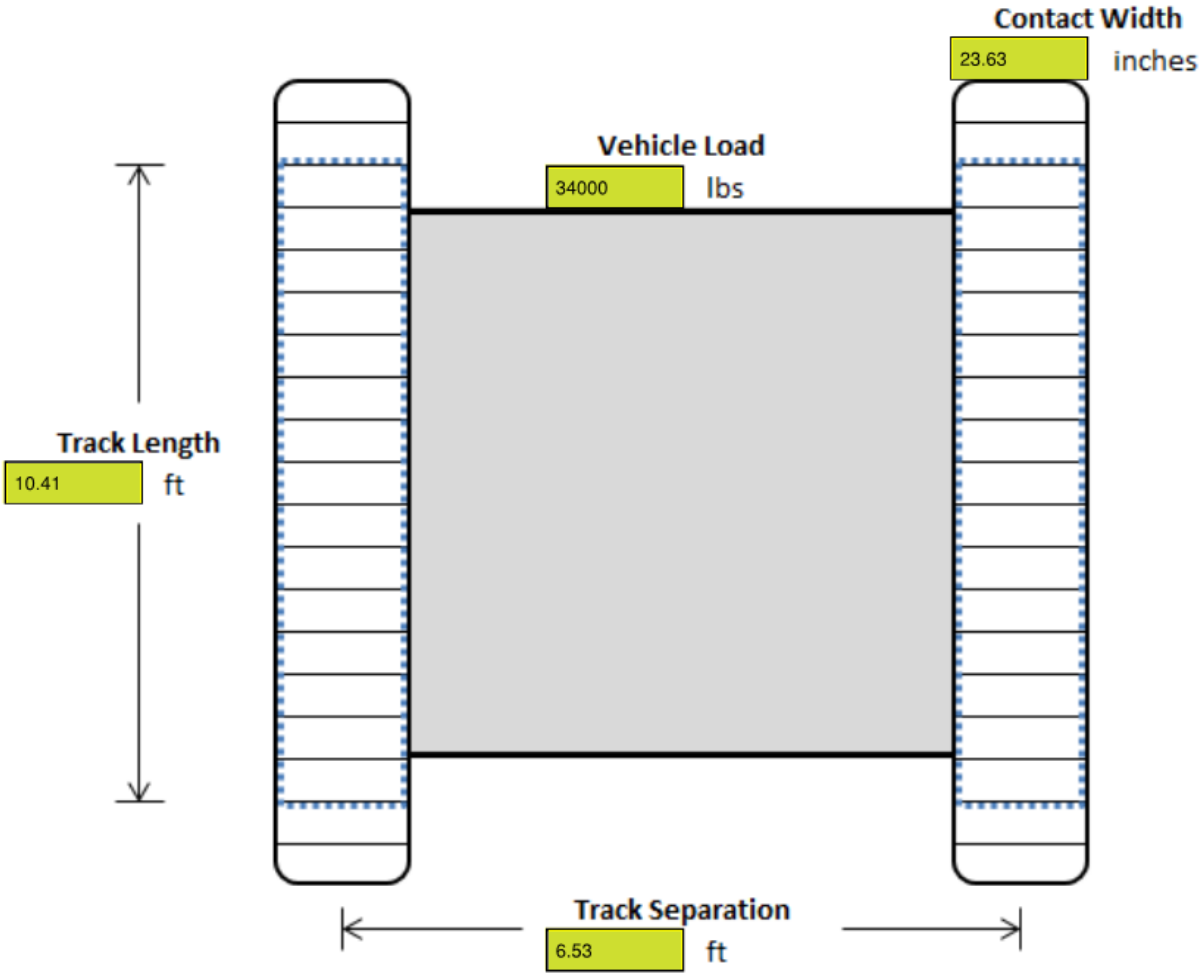

Figure 5-1E.4: CAT 315 Excavator

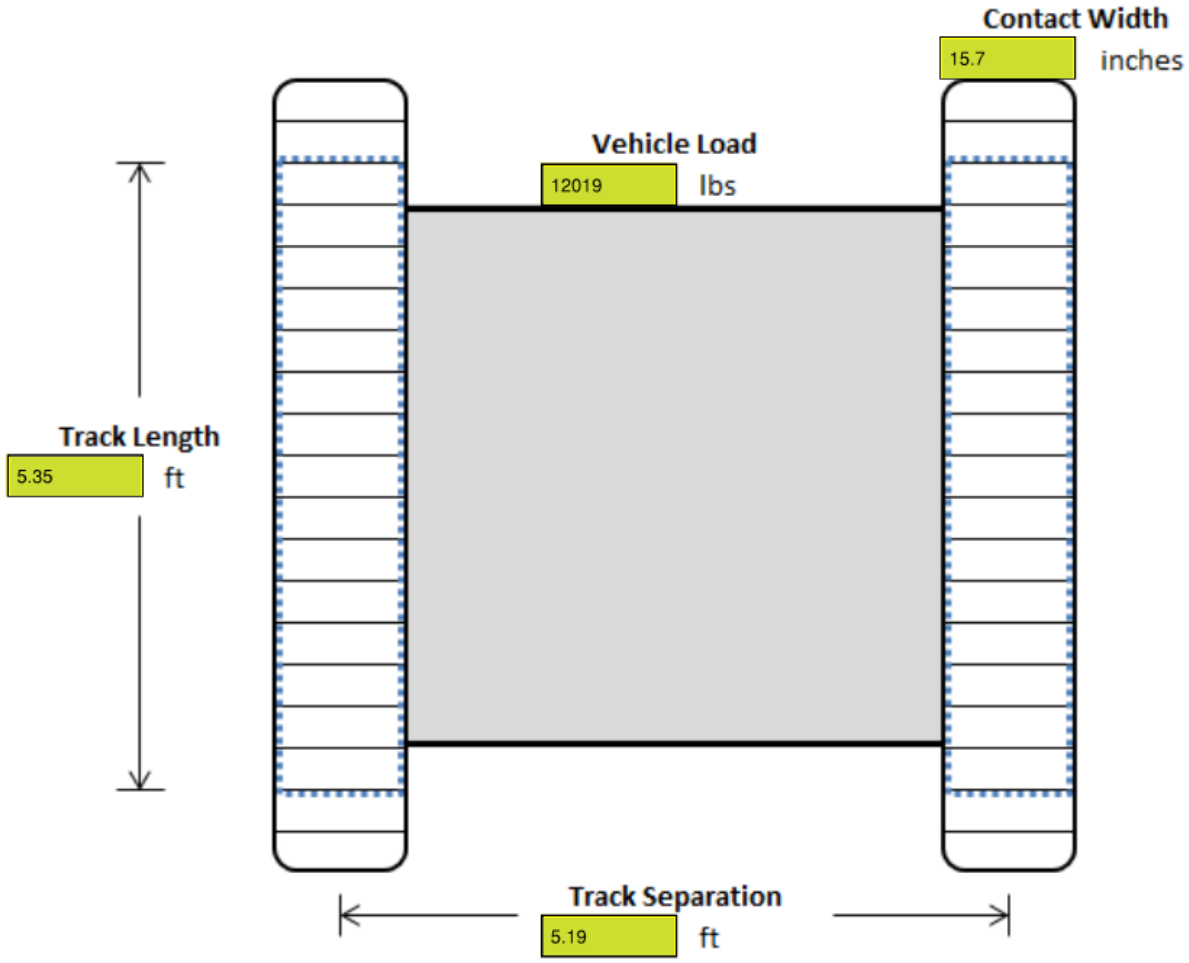

Figure 5-1E.5: CAT 279 D3 Skid Steer

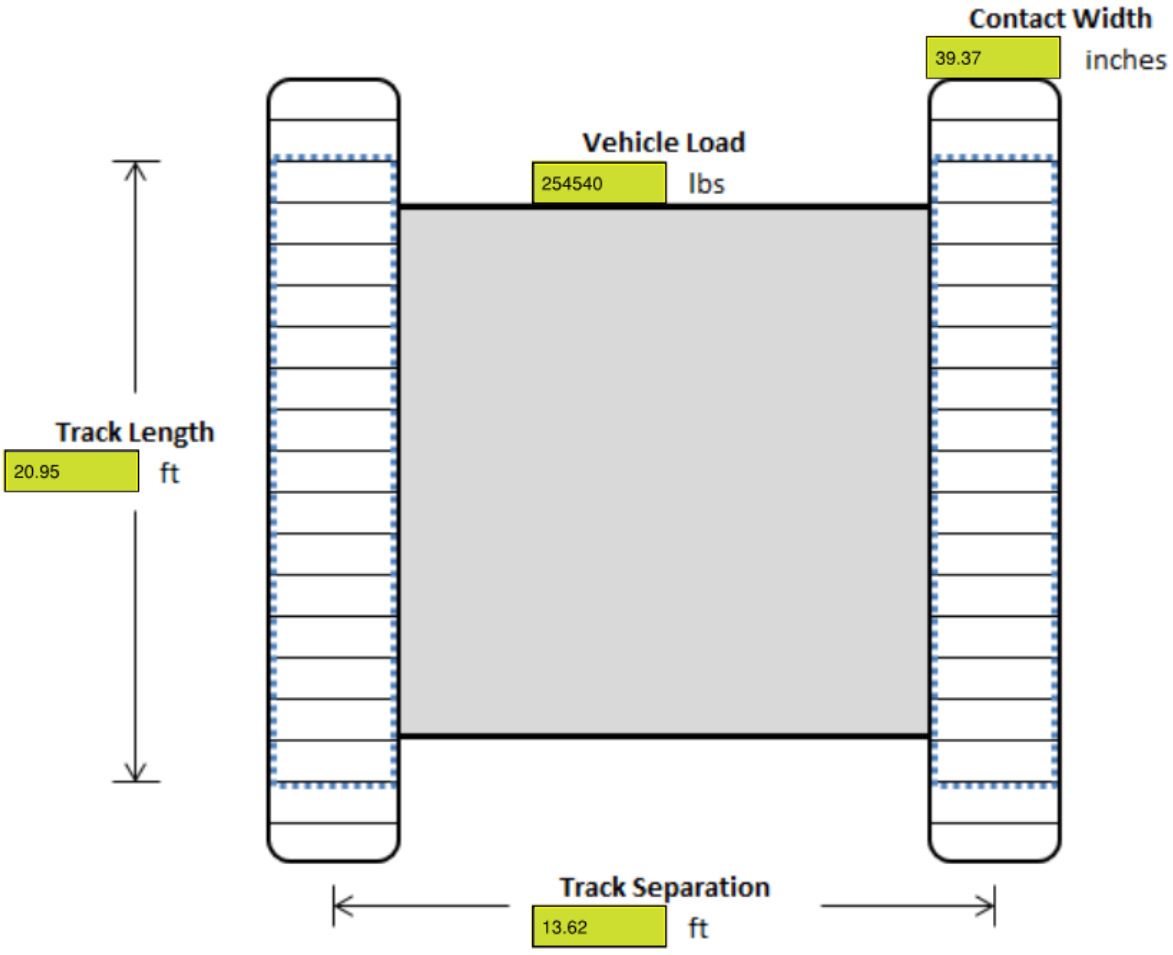

Figure 5-1E.6: LIEBHERR LB36 Pile Drill Rig

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