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998 Expo Boulevard – Area 5B West
Design Rationale

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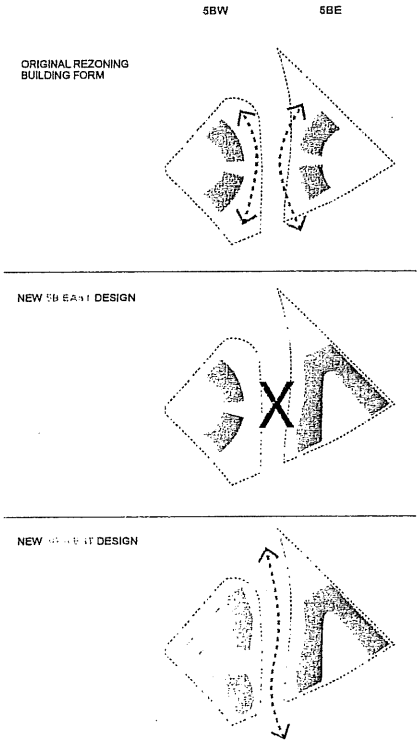
Context, Urban Design Response and Massing

The proposed new development occupies a triangular site at the north end of the Cambie Bridge, bounded by major vehicular arteries that include the Smithe Street off-ramp to the north, Expo Boulevard to the west and Nelson Street to the south. Along with its sister site, 5B East north-east of the Smithe Street off-ramp, this new development forms the arrival gateway to downtown Vancouver, for all traffic travelling north on the Cambie Bridge. Recognising this relationship, the massing and architectural expression of this development, builds on the fluid building forms implied in massing of the adjacent 5B East project now under construction.



The primary building forms are an interlocking pair of major and minor residential towers that form an arch across the northern perimeter of the site. These buildings straddle the pedestrian passage that extends through the site, under the Smithe Street off-ramp, heading north to Pacific Boulevard. The southern extension of this pedestrian passage, terminates in a south-facing plaza that opens to Nelson Street. Double fronting commercial tenancies, provide for a continuously animated retail exposure to both the plaza enclosure and to the passing traffic on Expo Boulevard and Nelson Street. The street fronting commercial façades are segmented to allow for smaller tenancies, while providing canopies for continuous rain protection. The two residential towers have multi-

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storey entry lobbies that are also accessed from the plaza, further reinforcing the pedestrian movement patterns along this internal spine.

The slip-lane of Smithe Street onto Expo Boulevard has been reconfigured into a right-angle intersection, thereby facilitating the vehicular access to underground parking for commercial and residential tenancies, that is taken from the Expo Boulevard frontage. A total of 520 parking stalls, including 59 visitor stalls, are provided below grade. All loading access is taken from Nelson Street, accessing the commercial and residential loading bays along the northern perimeter of the site, against the Smithe Street off-ramp. Bicycle parking is provided both at and below grade, with a total of 751 stalls being provided. A bike-share facility is also to be provided under the cover of the Smith Street off-ramp.

The two residential buildings provide a total of 588 units of varying sizes, with 150 of these units being either 2 bedroom units or larger. The vertical circulation for both buildings accesses day-lit lobbies on each floor, with views into the central arch of the building. The amenity space for the residents is found in two major features of the project. The primary outdoor amenity for the residents is located over the larger roof area of the commercial space fronting onto Expo Boulevard. This roof space provides for both active, child-friendly play space as well as more passive roof-top garden space. A second amenity space is provided in a multi-storey lounge and pool facility that spans the 60 ft between the two buildings. A common roof deck off the lounge area provides large outdoor deck space with views to the south, east and west.

Sustainable Design, Architectural Expression and Public Art

The building is being designed to achieve a LEED Silver equivalency, targeting 53 points and has been registered under LEED Canada NC 2009. The building will be modelled to confirm that energy targets are met for both building envelope and mechanical/electrical systems. Mechanical systems will be designed to be ready for connection to the District Energy Utility. The landscaping of large areas of the roof, provide both an amenity to the residents as well as mitigate storm water runoff.

The architectural expression of the building is informed by the sustainable design features required to enhance liveability for the residents of the building. The building form arrays the residential units along a primarily

easterly or westerly orientation and this requires a design strategy that will mitigate the solar gain from these exposures. This has found its expression in an undulating glazed balcony projection that shades most of the windows below from excessive exposure. The depth of this glazed balcony, varies along the length of the building, further animating the façade. Where the balcony projection is not sufficient to provide adequate shade, a fritted extension of the glass balustrade has been dropped below the balcony slab projection, to enhance the shading to the window below. Elsewhere on the building, vertical glass shading fins extend at right angles to the window system, again shading the adjoining windows. Similar vertical glass fin elements extend above the uppermost roof, to screen the mechanical equipment on the roof.

The southern prow of the building, cants forward as it rises between the twin traffic streams of the Smithe and Nelson bridge ramps. Here again the arc of the balcony extensions, shade the units from their southern exposure and speak to the confluence of the primary traffic arteries that spring from the north end of the Cambie Bridge.

The primary focus of the Public Art installation for the project will the be the space and the surfaces within and under the arch formed by the building. The Public Art Consultant has been charged with enabling a process that will yield an art installation that can inhabit both the scale and character of this space, while speaking to both approaching pedestrians, as well as the occupants of passing vehicles.

The public realm design for the project is centered on the characteristics and the particular contextual setting of the site. These influences become the guiding principles directing the design of the public realm.

Landscape – A Unique Urban Setting

City Street Grid

The site is located at the hinge point between the Vancouver city grid and the organic influences of the waterfront where the urban fabric changes from orthogonal blocks with a strong built street wall to curvilinear blocks with object architecture and discontinuous street wall.

Transportation Infrastructure

The Site is located at the Cambie Street bridgehead which separates it from the adjacent 5B East development. The area under the bridge is the connection between open spaces of these neighbouring sites.

The site is also surrounded by major city roadways which contribute to a discontinuous pedestrian cyclist experience making pedestrian cycling connectivity a focus of the public realm design. A future street car station is planned along the southern edge of the site highlighting the need for a better connected public realm.

Scale of Architecture

The surrounding architecture that forms the context of the site includes large scale object architecture such as stadiums.

Adjacent Uses

The project's adjacency to the BC Place stadium and the Parq (Vancouver Urban Resort) as well as the neighbouring 5B East development, will create / require a vibrant and well-used pedestrian environment which the design of the public realm has to respond to.

Directions of Public Realm

Cohesiveness of Public Realm

The landscape design recognizes the need for creating a unified open space language across 5B West and 5B East sites. This is achieved by creating a bold continuous floor with a strong graphic quality which expands across the two sites. The paving is further enhanced by emphasizing the desire line between the main open spaces within the two sites through added texture and complexity. This floor treatment has the potential to expand to the site west of Nelson Street and possibly south of Pacific Boulevard and towards the waterfront creating a unique district.

Unique landforms and grass mounds compliment the notion of object architecture as objects that are placed over the pattern of the plaza floor. Similar in form, a series of modular seating elements provide another layer of texture to the space.

Groves of informally planter trees in the plaza contribute to pedestrian comfort and soften the very urban nature of the plaza.

Connectivity for Pedestrian and Cyclists

By recognizing the major pedestrian and cycling patterns, the public realm design accommodates these patterns and facilitates the movement of people across the site both in the east west direction and towards the waterfront.

Under the Bridge

The public realm design creates an animated and energetic space under the Cambie Street Bridge through programming and visual interest. Retail edges of this development and the adjacent 5B East development hat face this space are enhanced by incorporating retail kiosks under the bridge. These will be supported by other pedestrian amenities such as the modular seating elements.

The space is further animated by the use of lighting in the space as well as potential for lighting the ceiling under the bridge and the incorporation of a light wall as a backdrop to the space at the bulkhead.

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Response to Rezoning Conditions of Approval of the Form of Development

CONDITIONS OF APPROVAL OF THE FORM OF DEVELOPMENT

(a) That the proposed form of development be approved by Council in principle, generally as prepared by James KM Cheng Architects, in revised plans stamped, and stamped "Received City Planning Department, December 11, 2007, provided that the Director of Planning may allow minor alterations to this form of development when approving the detailed scheme of development as outlined in (b) below.

(b) That, prior to approval by Council of the form of development, the applicant shall obtain approval of a development application by the Director of Planning, who shall have particular regard to the following:

Design Development

1. Provide verification of compliance with height limit set by Cambie Bridge View Corridor (View 3.2.1 and 3.2.2).

The proposed development respects the Cambie Bridge View Corridor as shown in the elevation drawings A200-A203

2. Delete the references to live-work from the drawings, as this space shall be considered residential.

No live-work proposed in the project.

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3. Design development to provide variety and interest to the architectural expression of the building(s) with high quality durable materials that will contribute to the character and quality of the area.

   Note to applicant: A high quality development that establishes a robust compatible character with the existing neighbourhood fabric is required.

High quality durable materials are proposed for the project. (Architectural Concrete, Metal Cladding, Glass Spandrel, Window Wall and Curtain Wall Glazing)

4. Design development to the tower's shape to create a less rigid curving form that responds better to the Cambie Bridge and provides a greater offset for the neighbouring residential tower across Expo Boulevard.

New building shape responds better to the Cambie Bridge and neighbouring tower.

5. Design development to the treatment of the public realm around and through the site to enhance pedestrian interest and amenity.

Rich public realm provides interest for pedestrian.

6. Design development to the various ground level storefronts, residential entries and other frontages to provide an active public realm interface with "eyes on the street".

All sides of the development have an active interface with the public realm.

7. Identification on the plans and elevations of the

built elements contributing to the building's sustainability performance in achieving LEED® Silver equivalency, including at least three optimize energy performance points, one water efficiency point, and one storm water point.

Note to Applicant: Provide a LEED® checklist confirming LEED® Silver equivalency and a detailed written description of how the above-noted points have been achieved with reference to specific building features in the development. Both the checklist and description should be incorporated into the drawing set. Pursuit of LEED® Gold rather than Silver is encouraged.

Detailed written description of the LEED points provided on Drawing A001.

8. Design development to take into consideration the principles of CPTED (Crime Prevention Through Environmental Design) having particular regard for:

a. design of the under-bridge area to reduce opportunities for mischief and vandalism,

The area under the bridge will be well lit and have good connectivity with the neighbouring developments.

b. ensuring that all pathways are clearly defined with defensible design,

All pathways have been clearly defined.

c. reducing opportunities for graffiti and skateboarding, except where the latter may be intentionally accommodated,

Durable materials used at ground level and treated with anti-graffiti coating.

d. providing full secure separation for residential uses and parking, and

Each user group has been separated to provide security.

e. mischief, such as graffiti.

Durable materials used at ground level and treated with anti-graffiti coating.

Engineering

9. Clarify garbage pick-up operations. Please provide written confirmation that a waste hauler can access and pick up from the location shown. Note: pick up operations should not rely on bins being stored on the street or lane for pick up. Bins are to be returned to storage areas immediately after emptying.

Required headroom clearances and maneuvering aisles dimensions provided for garbage pick-up operations as seen on Drawings A104 and A105

10. Revise the tech table and referenced parking standard and recalculate the parking shown to reflect the current applicable standard.

Parking, loading and bicycle storage meet the current Parking By-law.

11. Design development to relocate the driveway crossing on Nelson Street further north from Pacific Blvd., to the satisfaction of the Director of Planning and the General Manager of Engineering Services.

Note to Applicant: The parking and loading access

on Nelson St. is to be located a minimum of 12.0 meters from the future south property line/SRW line and the two proposed crossings (loading and parking access) are to be combined to a single crossing, with all loading maneuvering taking place on-site. Engineering Services may support a second access off Expo Blvd. to facilitate movements into and out of the site.

Ongoing discussion with Engineering to resolve access points to the site.

12. Provision of a Parking and Loading Study by a qualified Transportation Consultant, including:

a. Clarifying the site's loading needs and how they will be met on- site
b. Providing a Loading Management Plan to the satisfaction of the General Manager of Engineering Services to ensure that trucks delivering to the site will not use the adjacent streets
c. Providing recommendations to address and resolve any design issues with the proposed loading facility including review of on- site maneuvering or independent ingress into and egress out of the loading spaces
d. Analyzing and providing recommendations to the design of the parking ramps and the overall parking layout to ensure a safe and functional design
e. Reviewing and making recommended changes to the design of the parking ramp at the P1 and P2 level where there is inadequate distance between the end of the ramp and the parking spaces and an unacceptable jog in the parking drive aisle.

Detailed transportation assessment provided.

13. Provide clarification of what is meant by "extending the bicycle network informally through the site" as noted in Transportation Innovations #2.4, Bicycle Facilities.

    Note to applicant: if the intention is to create a public right-of-way/an open area for cyclists to travel through the site then a registered Statutory Right-of-Way to the satisfaction of the General Manager of Engineering Services is required.

No bicycle network extension proposed through the site

14. Compliance with the Parking and Loading Design Supplement to the satisfaction of the General Manager of Engineering Services. Note to applicant: Provision of good connectivity from loading to all retail spaces and residential units is required and should be carefully reviewed.

Loading complies with the Parking By-law and is located to provide easy access to Retail and Residential areas as shown on drawing A101 and A105.

15. Please add the following note to the landscape plan and submit a copy directly to Engineering Services for review:

    "A landscape plan is to be submitted for review by Engineering Services a minimum of 8 weeks prior to the start of any construction proposed for public property. No work on public property may begin until such plans receive "For Construction" approval and related permits are issued.
    Please contact Kevin Cavell at 604-873-7773 for details."

A copy of the Landsacape Plan will be sent directly to Engineering Services.

Planning

16. Provide draft text to be included in the disclosure statement for the development indicating that the area is an event district and event- related noise can be anticipated.

See Letter From Concord Pacific. Text to read: The City of Vancouver Noise Control By-Law No. 6555 establishes the area in which the Development is located as an event zone. Accordingly, the permitted daytime and nighttime noise levels in the case of BC Place Stadium, Rogers Arena and a civic plaza in the event zone are extended (7:00am to 11:00pm on any weekday or Saturday and 10:00am to 11:00pm on any Sunday or holiday). For further information, please see the Noise Control By-Law at http://former.vancouver.ca/bylawys/6555c.pdf

17. Provide a report prepared by professionals in acoustic and mechanical engineering that demonstrates how using noise isolation design strategies and passive and/or mechanical cooling, the building will meet the following performance criteria:

    a. mitigate event noise to achieve noise levels between 40 dBC and 50 dBC within the units during event periods, and
    b. ensure summertime internal thermal comfort levels in line with ASHRAE 90.1 V. 2007 (with windows closed).

Report prepared by Acoustic and Mechanical Consultants will be submitted.

Sustainability

18. An approach to Sustainable Site Design shall be taken and, where appropriate, incorporate layout and orientation approaches that reduce energy needs, facilitate passive energy solutions, incorporate urban agricultural opportunities, and replicate natural systems where feasible.

The building shape allows for good natural ventilation and good access to light. (the residential units are 25'-0" deep)
Urban Agriculture provided on L2 rooftop.
Continuous balcony and slab projection provides shading to units. Additional shading devices (vertical and horizontal glass fins) are provided.

19. Provide a Green Mobility and Clean Vehicles Strategy that includes the requisite infrastructure where appropriate to prioritize sustainable transportation modes including walking, cycling, public transit, and provisions for low carbon vehicles (e.g., electric vehicles), completed to the satisfaction of the General Manager of Engineering Services, and prior to Development Permit issuance the completion of any agreements required by this Strategy on terms and conditions acceptable to the General Manager of Engineering Services and the Director of Legal Services.

Green Mobility and Clean Vehicles Strategy incorporated to the project.

20. Provide a Sustainable Rainwater Management plan that utilizes sustainable strategies to allow for infiltration, retention, treatment and utilization of rainwater where applicable and appropriate on site.

Note to Applicant: The requirements of the Sustainable Rainwater Management Plan should

be coordinated/integrated with the required Landscape Plan.

This project will following LEED SSc6.2–for storm treatment. A stormceptor will be designed and installed to treat 80% of the TSS from the site.

21. Provide a Solid Waste Diversion Strategy that addresses waste diversion in all solid waste generating activities within the complex.

Note to Applicant: The Strategy must identify/provide space, infrastructure and an operational approach to divert organics and recyclables from the waste stream, and minimize the vehicle trips required for collection, to the satisfaction of the General Manager of Engineering Services, and prior to Development Permit issuance the completion of any agreements required by this Strategy on terms and conditions acceptable to the General Manager of Engineering Services and the Director of Legal Services.

Garbage, Recycling and Composting facilities provided for Retail and Residential uses.

District Energy

22. The building(s) shall connect to the district heating system approved by the General Manager of Engineering Services to service new development in Northeast False Creek for provision of all building heating and domestic hot water service; except where the use of equipment to capture waste heat energy from the refrigeration or cooling system of a building is approved by the General Manager of Engineering Services for the purpose of

supplementing the heat energy provided by the district heating system.

Note to Applicant: Unless and until Central Heat or an alternate energy supplier is the holder of The City of Vancouver's Retail Franchise for Northeast False Creek Low Carbon Renewable District Heating Services, the Applicant will be prohibited from entering into any energy supply contract (other than for electricity, or natural gas required for processes not including space heating and domestic hot water provision) that does not give the Applicant and all future owners of the property the right to cancel such contract in whole or in part without cause or liability upon the occurrence of the Retail Franchise for Northeast False Creek Low Carbon Renewable District Heating Services containing performance criteria for the Maximum Carbon Intensity of Delivered Heat and in any event no such energy supply contract will be entered into without the prior written approval of the General Manager of Engineering Services. The City of Vancouver's Retail Franchise for Northeast False Creek Low Carbon Renewable District Heating Services shall be to the satisfaction of the GMES and described in the legal agreement regarding Sustainability required as a condition of by-law enactment. Maximum Carbon Intensity of Delivered Heat means that maximum amount of Co2e produced through the provision of space heating and hot water service as described in The City of Vancouver's Retail Franchise for Northeast False Creek Low Carbon Renewable District Heating Services, and referenced in the legal agreement regarding Sustainability required as a condition of by-law enactment.

The Project will connect to the NEU.

23. Space heating and ventilation make-up air shall be provided by hydronic systems, without electric resistance heat, distributed heat generating equipment gas fired make-up air heaters, etc.

Note to Applicant: On a case by case basis, the General Manager of Engineering Services may approve limited use of electric resistance heaters, or other distributed heat generating equipment to heat difficult to access parts the complex such as remote mechanical rooms or crawlspaces.

Space heating will be provided by a hydronic system.

24. Design development to the mechanical heating and domestic hot water systems to ensure a minimum supply temperature of 65 degrees Celsius and maximum return temperature of 50 degrees Celsius in order to facilitate district heating service.

The Mechanical Engineer will design their systems to ensure that the required temperatures are provided.

25. The building design is to include adequate space and designs to support connection to the district energy system approved by the General Manager of Engineering Services.

Notes to applicant: At the building permit stage the applicant will be required to submit final detailed drawings, signed and sealed by a professional engineer where necessary, for review by Engineering Services to confirm final room dimensions, sleeve details, and servicing needs. Provide suitable space for the installation of the district energy system equipment, with adequate provision for connection to outside district energy system distribution piping and communications conduit. District energy equipment may include but is not limited to energy transfer stations (ETS), a steam to hot water converter station, or boiler equipment. The developer shall make available use of sewer and potable water piping. The space provided for district energy system equipment shall be ventilated as required by the

Vancouver Building By- law and heated during the winter to minimum 15oC. As required, the developer must provide dedicated electrical services required to service the district energy system equipment, to the satisfaction of the General Manager of Engineering Services.

The NEU room will comply with the City's required dimensions.

26. No natural gas fireplaces are to be installed within building suites;

Note to Applicant: On a case by case basis, the General Manager of Engineering Services may approve limited use of natural gas fireplaces for ornamental purposes. A letter from a professional engineer outlining any provision for ornamental fireplaces is to be submitted at the time of application for Building Permit to state that the fireplaces installed are not heat producing.

No natural gas fireplaces provided in the suites.

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