

19 June 2017

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ARCHITECT AIBC MRAIC  
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UK-Registered ARCHITECT ARB MRAIC

LEED Canada  
Green Building Council  
Passive House Canada

**Attention:** Karen Russell, Manager, Development Services

**Re:** Development Permit Application – Hebb Building Upgrade

Dear Karen,

We are pleased to provide the following information and design rationale in support of the Development Permit Application for the above referenced project.

## 1. EXECUTIVE SUMMARY

### 1.1 Use

The Hebb Building houses undergraduate teaching lab and classroom functions for the Faculty of Science, Department of Physics and Astronomy. The primary objective of the Hebb Building Upgrade is focused on addressing the current deferred maintenance deficit while also meeting service objectives, current codes, sustainability objectives and principles, and UBC technical standards. The upgrade will include reconfiguration of classroom, lab, teaching and support spaces to support contemporary pedagogy.

### 1.2 Context and Site

The Hebb Building is a six-storey concrete frame building located at 2045 East Mall on the University of British Columbia Point Grey campus that is surrounded to the north, south, and west by multi-storey academic buildings. The original building was constructed in 1964 and was designed by Thompson Berwick & Pratt Architects.

The third floor of the Hebb Building is connected by existing bridges to the Hennings Building to the north and the Chemistry Building to the south. The existing bridge connection to the Hennings building is to be replaced as part of the seismic upgrade.

The upgrade will generally be contained within the existing building footprint, with a few relatively minor additions of new building area.

All occupants and activities will be moved to swing space for the duration of construction.

### 1.3 Project Scope

The Hebb Building Upgrade scope will include, but not be limited to, the following:

- building code and life safety upgrades; new fire alarm and sprinkler systems; existing stairs are to be upgraded with new hand rails, guards, and tactile warning systems; hazardous materials abatement;
- seismic upgrade of the Hebb Building tower structure; one-storey extension of existing elevator shaft complete with refurbishment of elevator system and cabs; seismic restraint of existing interior masonry walls and exterior brick cladding; replacement of existing bridge connection to Hennings Building;
- building envelope upgrades; new thermally broken double-glazed windows and insulated spandrel panels; new solar shades; new composite fiber cement cladding at the north and south elevation; additional insulation at existing walls and new roofs;
- new mechanical fan room addition to be located on the existing roof between the Hebb Tower and Hebb Theatre; replacement of mechanical and electrical systems with energy efficient systems; reconfiguration of existing male and female washrooms;
- new optical telescope and dome to be installed atop the existing level 6 roof at a future date;
- new floor area to be added at grade level at existing covered areas to the west, south, and northeast corner of the building;
- replacement of all interior finishes including walls, ceilings, flooring, paint, and washroom fixtures and fittings;
- sitework and landscaping at Volkoff Lane; existing building service connection improvements; improved garbage, recycling and loading access; wayfinding and art wall graphic installations at the Hebb Tower main entry, stair towers and Hennings bridge connection, to better identify the Hebb Tower in relation to the Hebb Theatre.

### 1.4 Design Policy Compliance

The building upgrade will be designed in accordance with: British Columbia Building Code (BCBC) 2012; UBC Vancouver Campus Plan Design Guidelines, Campus Core District; and, UBC Technical Guidelines.

The project will target LEED Gold certification.

## 2. HAZARDOUS MATERIALS

Hazardous materials, including asbestos, are to be abated as part of the upgrade project. A hazardous materials assessment is presently underway to identify and clarify the nature, extent, and proposed abatement strategy.

## 3. SUSTAINABILITY

The Hebb Building Upgrade will target LEED Gold certification in accordance with *LEED Version 4 for Interior Design and Construction: Commercial Interiors*. For LEED purposes the project boundary will include the Hebb Tower but exclude the Hebb Theatre and site and landscape work at the surrounding lanes. Targeted LEED credits will focus on the new mechanical and electrical systems, improved glazing, solar shading, and enhanced insulation to contribute to meeting energy use targets.

#### 4. PUBLIC REALM

Portions of the public realm and site work have been identified on the architectural drawings as separate scopes of work as they are anticipated to be covered under separate Street and Landscape Permits. The extent and scope of the proposed work is to be confirmed following completion of cost estimating that is currently underway.

A primary objective for the project is to improve the public realm at Volkoff Lane through improved garbage, recycling and loading access. At the west end of Volkoff Lane, an existing sunken well adjacent to the Hennings Building is proposed to be filled in and paved to serve as a new location for screened garbage and recycling bins.

Wayfinding and art wall graphic installations at the Hebb Tower main entry, stair towers, and bridge connection to the Hennings Building are proposed to identify, acknowledge and celebrate the Hebb Tower use and function in relation to that of the Hebb Theatre. The intent is to develop these treatments in consultation with stakeholders during subsequent phases of design.

The public realm surrounding the Hebb Building is to include new patterned cast-in-place concrete in Volkoff Lane. Hebb Tower identity signage is proposed at East Mall near the entry to Volkoff Lane.

A new concrete planter is proposed to be constructed along the full length of the west side of the Hebb Tower. Existing asphalt paving at the lane on the west side of the Hebb Tower will be replaced following completion of the building upgrade construction.

At the south entry to the Hebb Tower, new concrete surfacing will define the entry area.

#### 5. STRUCTURE

The upgrade entails a full seismic retrofit of the existing structure for the Hebb Tower portion of the building. New concrete shear walls at the north and south ends of the Tower will extend from the foundations to roof level.

Existing exterior covered areas located at grade to the west, and at corner spaces at the northeast and southwest, are to be enclosed to create additional interior space for classroom use.

A new mechanical fan room is to be added atop the level 2 roof located between the Tower and the Theatre and is to be clad with composite fiber cement panels and anodized aluminum grilles.

The existing concrete elevator shaft is to be extended above the existing level 7 roof to provide sufficient over-run height in order that the elevator may serve level 6.

The existing structure and exterior wall at the west of level 6 is to be modified to create new windows and doors for direct access onto the roof deck. A portion of floor will be raised to provide handicap access to the existing roof deck.

The existing level 6 roof will require structural upgrading to accommodate the future addition of an optical telescope to be located at the northwest corner.

The existing bridge that connects the Hebb Tower to the Hennings Building is to be removed due to structural deficiencies and is to be replaced with a new glazed, steel bridge.

The existing south bridge that connects the Hebb Tower to the Chemistry Building is to remain in place.

## 6. BUILDING ENVELOPE

Existing brick cladding is to be remediated and seismically restrained. Where new shear walls are required to be constructed at the north and south ends of the Tower, the existing masonry and backup wall will be removed, reconstructed and clad with composite fiber cement panels to contrast and complement the existing white brick.

All existing windows will be replaced with new insulated glazing units in thermally broken aluminum curtain wall frames, complete with operable vents and insulated spandrel panel as indicated on the architectural drawings. The curtain wall glazing will feature a combination of raised cap and flush silicone joints with a combination of translucent white glass and clear glazing. White, translucent solar shades will be installed as part of the curtain wall system at the south and west elevations of the Hebb Tower.

Insulation will be added at the interior face of the perimeter walls to improve thermal comfort and the energy performance of the exterior building envelope.

The new fan room located atop the level 2 roof between the Tower and Theatre will be clad with composite fiber cement panels. Access to the new fan room will be by way of an exterior steel stair.

The exterior wall at the west of level 6 is to be modified to create new windows and doors for direct access onto the roof deck. New cladding will be composite fiber cement panels.

Although the new telescope and dome are not included in the current project scope, modifications for its future support and installation at level 6 roof are included.

The walls of the elevator shaft extension will be clad with composite fiber cement panels.

New steel ladders are to be added for access to level 7 and 8 roofs.

The new replacement bridge that will connect the Hebb Tower to the Hennings Building will feature silicone-jointed curtain wall glazing with a translucent white and clear glass graphic to announce and reinforce the identity of the Hebb Tower when viewed from East Mall and the west end of Volkoff Lane. The intent is to develop the graphic treatments in consultation with stakeholders during subsequent phases of design.

## 8. BUILDING SYSTEMS

Essentially, all mechanical and electrical systems throughout the Hebb Tower will be completely replaced.

The fire alarm system is to be upgraded and a fire suppression sprinkler system is to be added throughout the building. The existing fire alarm annunciator and Fire Department response point is located inside the Hebb Theatre at East Mall, remote from the Hebb Tower. A new second annunciator is to be provided at the main entrance to the Hebb Tower, accessed from Volkoff Lane. Fire alarm systems at the Tower and Theatre portions of the building are to be coordinated as a single system.

The UBC district energy system runs through the basement of the Hebb Tower and is to be retained and protected.

New mechanical and electrical systems will typically occupy existing spaces. New data and telecom rooms are to be installed.

The existing elevator machinery and controls are to be upgraded.

Mechanical systems serving the Hebb Theatre are to be retained.

Addition of a new sprinkler system inside the Hebb Theatre and an upgrade to fire alarm systems and exit signs in the Theatre will be undertaken. Full replacement of existing light fixtures will be considered as a separate scope.



## 1.6 INTERIORS

Partitioning of the interiors is to be reconfigured to better meet the needs of the Department of Physics and Astronomy.

Existing masonry partitions are to be structurally upgraded for stability under seismic loading.

An accessible washroom is to be provided at ground level by reconfiguring the existing male washroom. Additional new washrooms are to be provided by reconfiguring spaces at levels 3, 4, and 6.

All existing finishes are to be removed and replaced with new finishes.

We trust the Development Application will meet with your approval.

Please contact us if you have any questions or require additional information.

Regards,

A handwritten signature in black ink, appearing to read 'Russell Acton', with a small vertical tick mark at the end.

Russell Acton ARCHITECT AIBC AAA SAA OAA FRAIC  
Principal

cc Jay Hiscox, Senior Project Manager, Infrastructure Development | Project Services | UBC

# UBC Hebb Building Upgrade

## University of British Columbia

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Issues

20 Jun 2017 Issued for Development Permit



### Project Data

#### Civic Address

2045 East Mall, University of British Columbia  
Vancouver, BC, V6T 1Z1

#### Legal Description

PID 015-891-909  
District Lot 3044 Group 1 New Westminster District except firstly; part on plan 6147; secondly; part on plan 9301; thirdly; part on plan BCP6556; fourthly; part on plan BCP23719

#### Existing / Proposed Use

Department of Physics & Astronomy  
undergraduate classrooms + teaching laboratories  
Group A Division 2 Assembly with subsidiary Group D Office

#### Project Description

Seismic Upgrade & Renewal

#### Construction Type

Non-combustible construction; Sprinklers provided

#### Building Height

21.58m (existing) 6 storeys

#### Setbacks

Front Yard (East Mall): existing  
Rear Yard (Lane): existing  
East Side Yard (Lane): existing  
Wide Side Yard (Volkoff Lane): existing

#### Area

Total Existing + Proposed Gross Area: 6135.37 sm  
Site Coverage: 1483.50 sm  
Site Area: 1957.30 sm

#### Parking + Loading

None

#### Bicycle

Class 1: Volkoff Lane Bike Cage (utilize existing facilities)

#### Variations Requested

None

### Drawing List

#### Architectural 19 Drawing Sheets

A001 Cover  
A002 Context Plan  
A003 Site Plan  
A004 Perspective Views  
A005 Shadow Analysis  
A100 Level 0 Plan  
A100a Theatre Plan  
A101 Level 1 Plan  
A102 Level 2 Plan  
A103 Level 3 Plan  
A104 Level 4 + 5 Plan  
A105 Level 6 + 7 Plan  
A201 Section AA  
A202 Section BB  
A203 Section CC  
A204 Section DD  
A301 East Elevation  
A302 West Elevation  
A303 North & South Elevation

#### Landscape 7 Drawing Sheets

L0.00 Landscape Cover Page  
L1.00 Landscape Plan  
L1.01 Landscape Grading Plan  
L2.00 Landscape Planting Plan  
L3.00 Landscape Lighting Plan  
L4.00 Landscape Details  
L4.01 Landscape Details

#### Civil 3 Drawing Sheets

C1 Utilities Existing Conditions  
C2 Site Servicing Plan  
C2 Water Main Plan / Profile

### Area Tabulation

Level	EXISTING GROSS AREA (sm)	PROPOSED GROSS AREA (sm)	TOTALS (sm)
Basement	1190.20 *	0.00	1190.20
Level 1	1485.73 *	105.80	1591.53
Level 2	761.64 *	52.00	813.64
Level 3	812.86 *	0.00	812.86
Level 4	761.64 *	0.00	761.64
Level 5	740.18 *	0.00	740.18
Level 6	204.72 *	0.00	204.72
Level 7	0.00	20.60	20.60
<b>Sub-Totals</b>	<b>5,956.97 *</b>	<b>178.40</b>	
<b>Total Existing + Proposed Gross Area</b>			<b>6135.37</b>

\* Note: data marked with an asterisk is based upon records provided by the University of British Columbia

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f: 604.739.3355  
info@actonostroy.ca

## UBC Hebb Building Upgrade

University of British Columbia  
2045 East Mall

scale	date
n/a	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA

#### Owner

UBC - Project Services  
Jay Hiscox  
2329 West Mall  
Vancouver BC V6T 1Z4  
T: 604 827 4546 F: 604 822 5291

#### Architect

Acton Ostry Architects Inc  
Russell Acton / Nathaniel Straathof  
111 East 8th Avenue  
Vancouver BC V6J 1N5  
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#### Laboratory Consultant

RFD  
Mark Ranyak  
3965 Fifth Avenue, Suite 400  
San Diego California 92103  
T: 619.297.0159

#### Building Code

LMDG Building Code Consultants Ltd.  
Alan Jung  
4th Floor - 780 Beatty Street  
Vancouver BC V6B 2M1  
T: 604 682 7146 F: 604 682 7149

#### Structural

Read Jones Christoffersen Ltd.  
CC Yao / Meredith Anderson  
3rd Floor - 1285 West Broadway  
Vancouver BC V6H 3X8  
T: 604 687 1821 F: 604 738 1107

#### Mechanical

MCW Consultants - Mechanical  
Sam Louie / Adam Juck  
1400-1185 West Georgia Street  
Vancouver BC BC V6E 4E6  
t: 604 696 1821 f: 604 683 5681

#### Electrical

MCW Consultants - Electrical  
Greg Lord / Erik Mak  
1400-1185 West Georgia Street  
Vancouver BC BC V6E 4E6  
t: 604 687 1821 f: 604 683 5681

#### Sustainability

Stantec - LEED  
Graham Twyford-Miles  
1100 - 111 Durnsmuir Street  
Vancouver BC V6B 6A3  
T: 604.696.8000 F: 604.696.8100

#### Landscape

PFS Studio  
Chris Phillips / Chris Miramor  
1777 West 3rd Avenue  
Vancouver BC V6I 1K7  
T: 604.736.5168 F: 604.736.5167

#### Elevator

Apex Elevator Consulting  
Michael Chadney / Brett Keeble  
Suite 2000 - 1066 West Hastings Street  
Vancouver BC V6E 3X2  
t: 604.533.4617 f: 1.855.888.9933

#### Geotechnical

Geopacific Consultants Ltd.  
Kyle Doyle  
1778 West 75th Ave  
Vancouver BC V6P 6P2  
t: 604.439.0922 f: 604.439.9189

#### Civil

Core Group Civil Consultants Ltd.  
Cormac Nolan / Brian Carnahan  
320 - 8988 Fraserston Court  
Burnaby BC V5J 5H8  
t: 604.299.0605 f: 604.299.0629

#### Surveyor

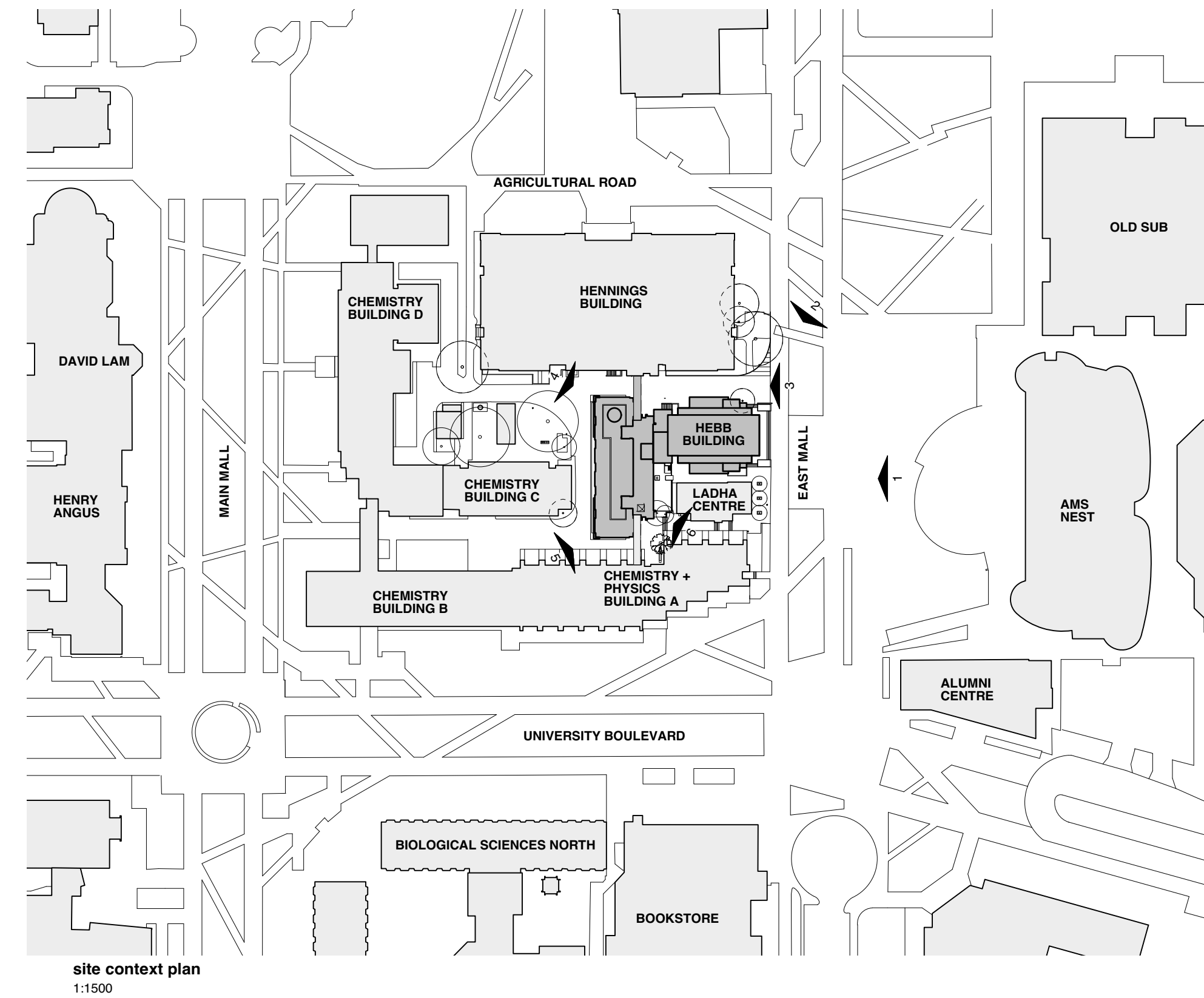
Murray & Associates Ltd.  
Greg Marston  
201 - 12448 82 Ave  
Surrey BC V3W 3E9  
t: 604.597.9189 f: 604.597.9061

### Cover

drawing number

A001





site context plan  
1:1500



1 view of east elevation of Hebb tower and theatre



2 view of north and east elevations from East Mall



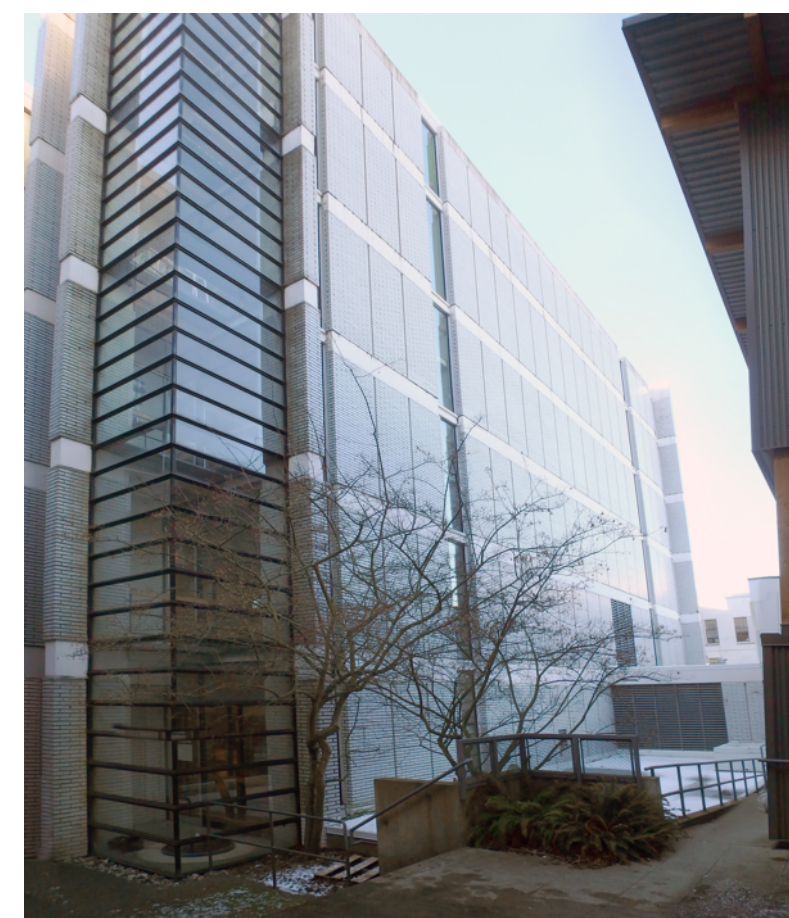
3 view of north bridge from Volkoff Lane



4 view of north and west elevations from Volkoff Lane



5 view of west and south elevations from south lane



5 view of east elevation from south lane

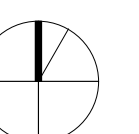
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## UBC Hebb Building Upgrade

University of British Columbia  
2045 East Mall

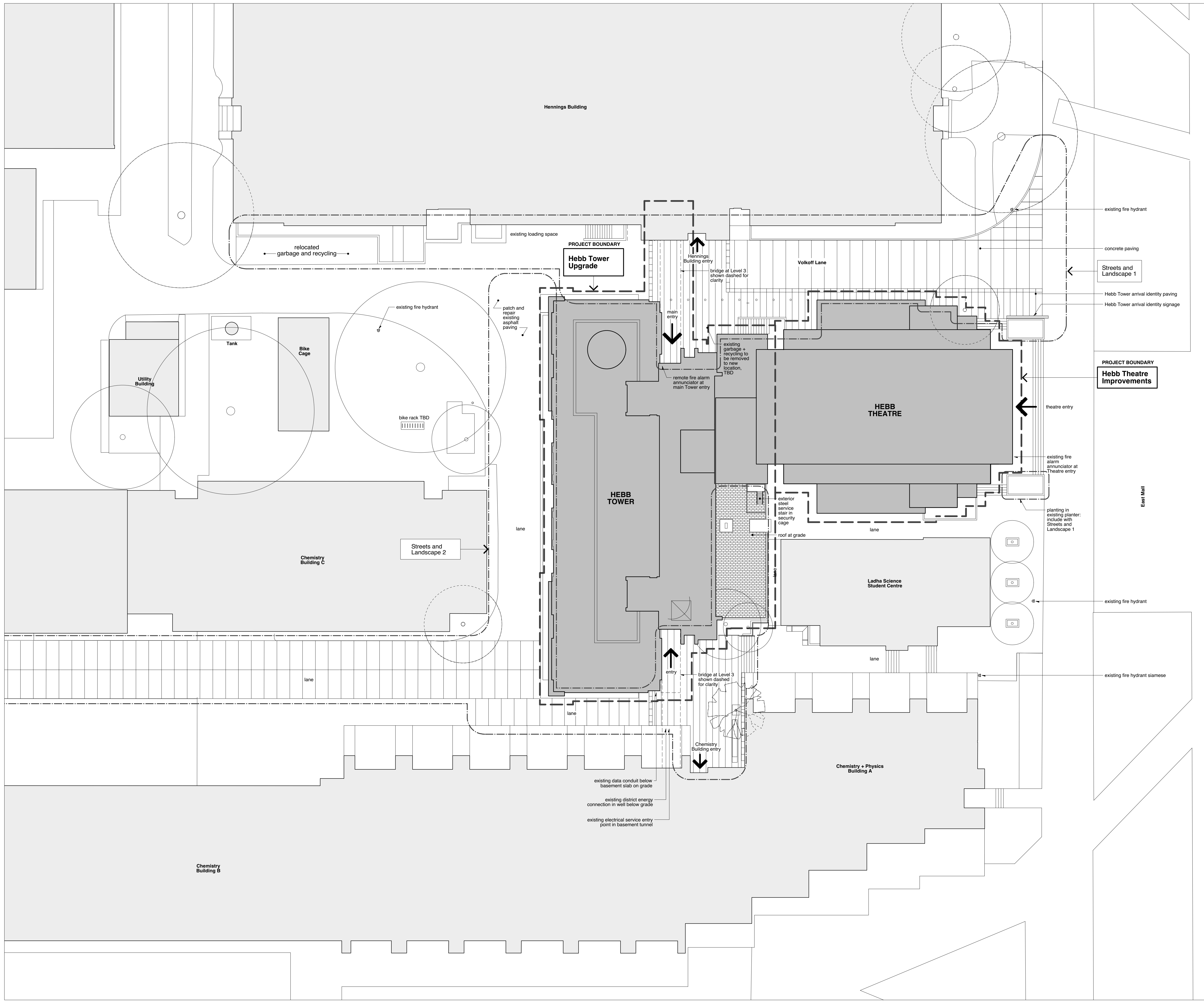
scale	date
as noted	20 Jun 2017
project code	status
HEBB	
drawn	checked
SH	NS/RA



## Site Context

drawing number  
A002





**General Notes**

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- All dimensions are to be confirmed on site.
- Architectural elevation datum 100.000m = top of floor at Level 1.
- Architectural Elevation datum 100.000m is equal to the following elevation data:  
377'3" architectural design drawings issued previously for existing building  
87.07m survey file updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.

**Project Boundary Notes**

- Project Boundary is 1 meter beyond face of Hebb Building, including Hebb Tower and Hebb Theatre.
- Landscape and Civil information beyond Project Boundary is shown for information purposes and is to be submitted to Authorities under separate Streets and Landscape (SLP) permit application.

**Legend**

tone indicates HEBB building

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**Issues**  
20 Jun 2017 Issued for Development Permit

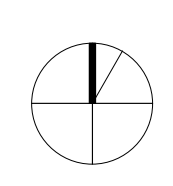
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**UBC Hebb Building Upgrade**

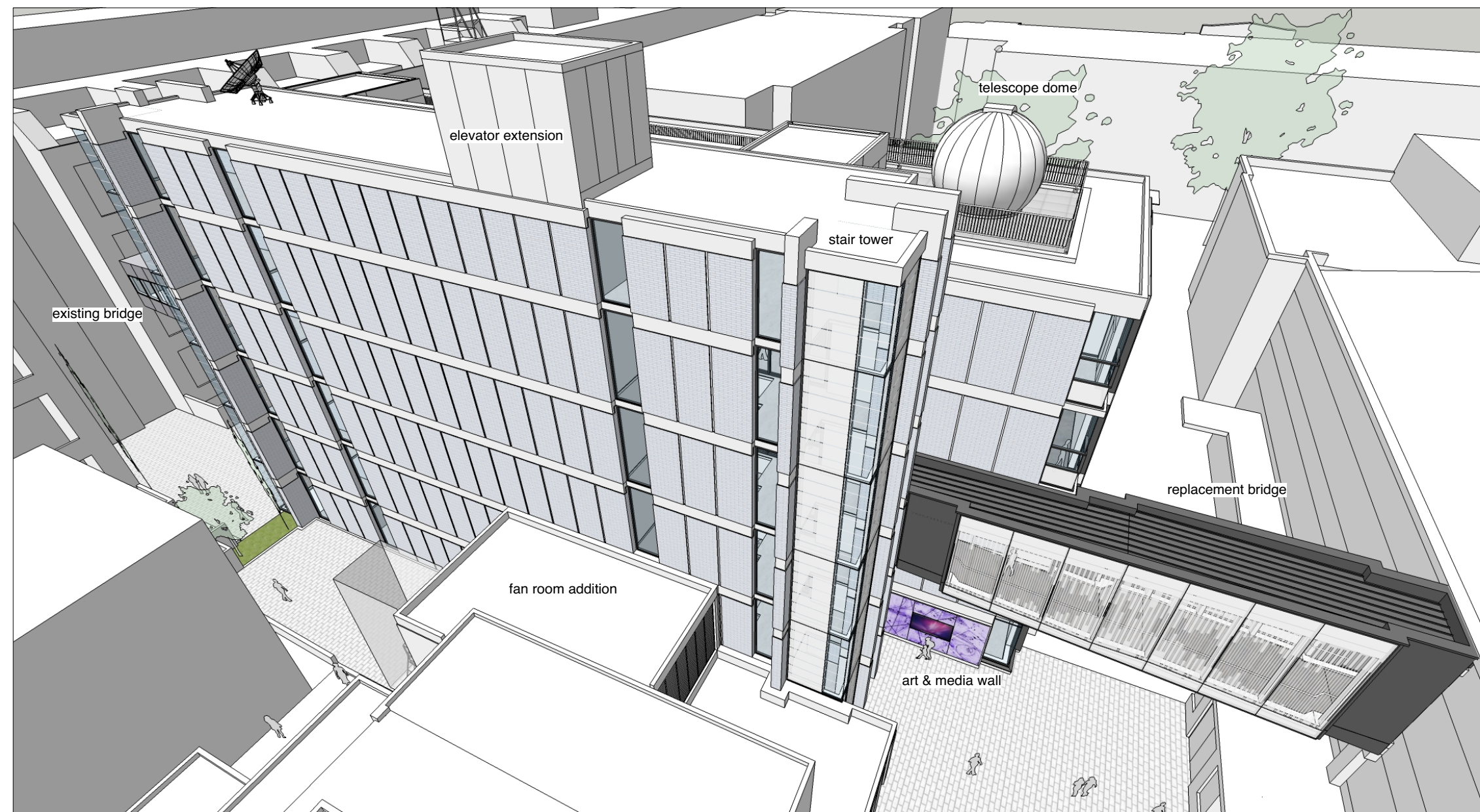
University of British Columbia  
2045 East Mall

scale	date
1:200	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA



**Site Plan**  
drawing number  
A003

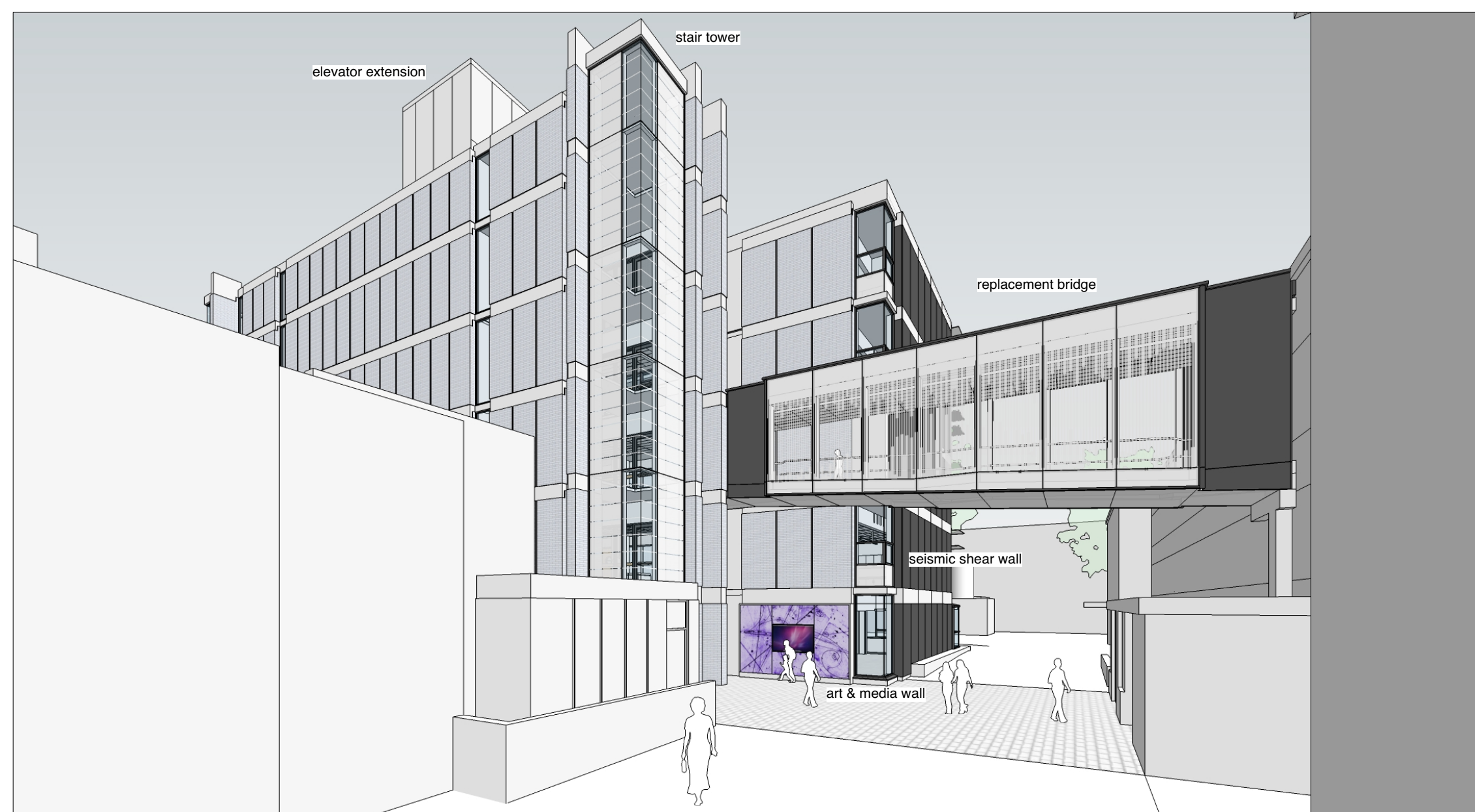




1 aerial northeast corner



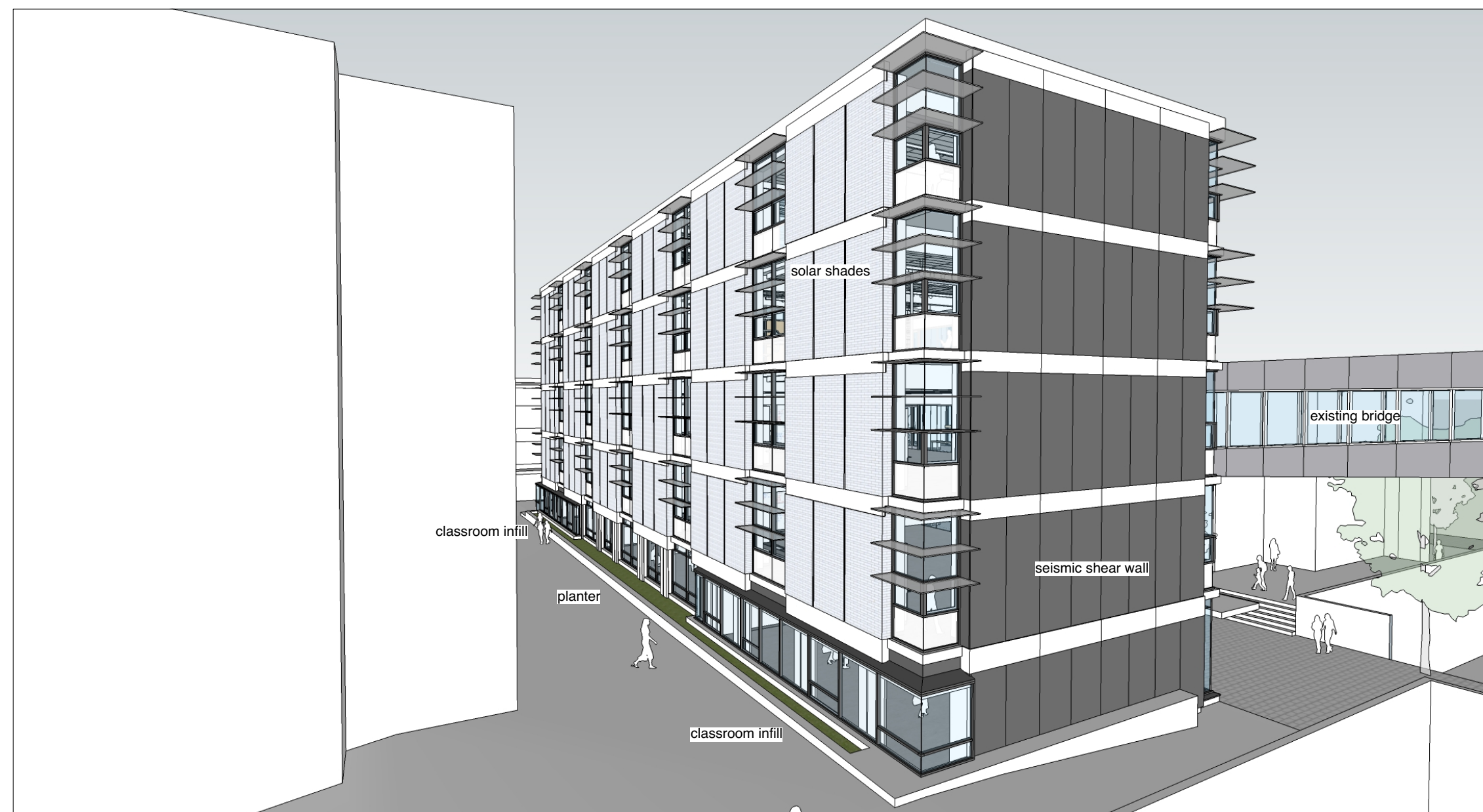
2 aerial northwest corner



3 Volkoff Lane



4 view from northwest corner



5 view from southwest corner



6 view from southeast corner

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## UBC Hebb Building Upgrade

University of British Columbia  
2045 East Mall

scale	date
nts	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SK	NS/RA

## Perspective Views

drawing number  
A004





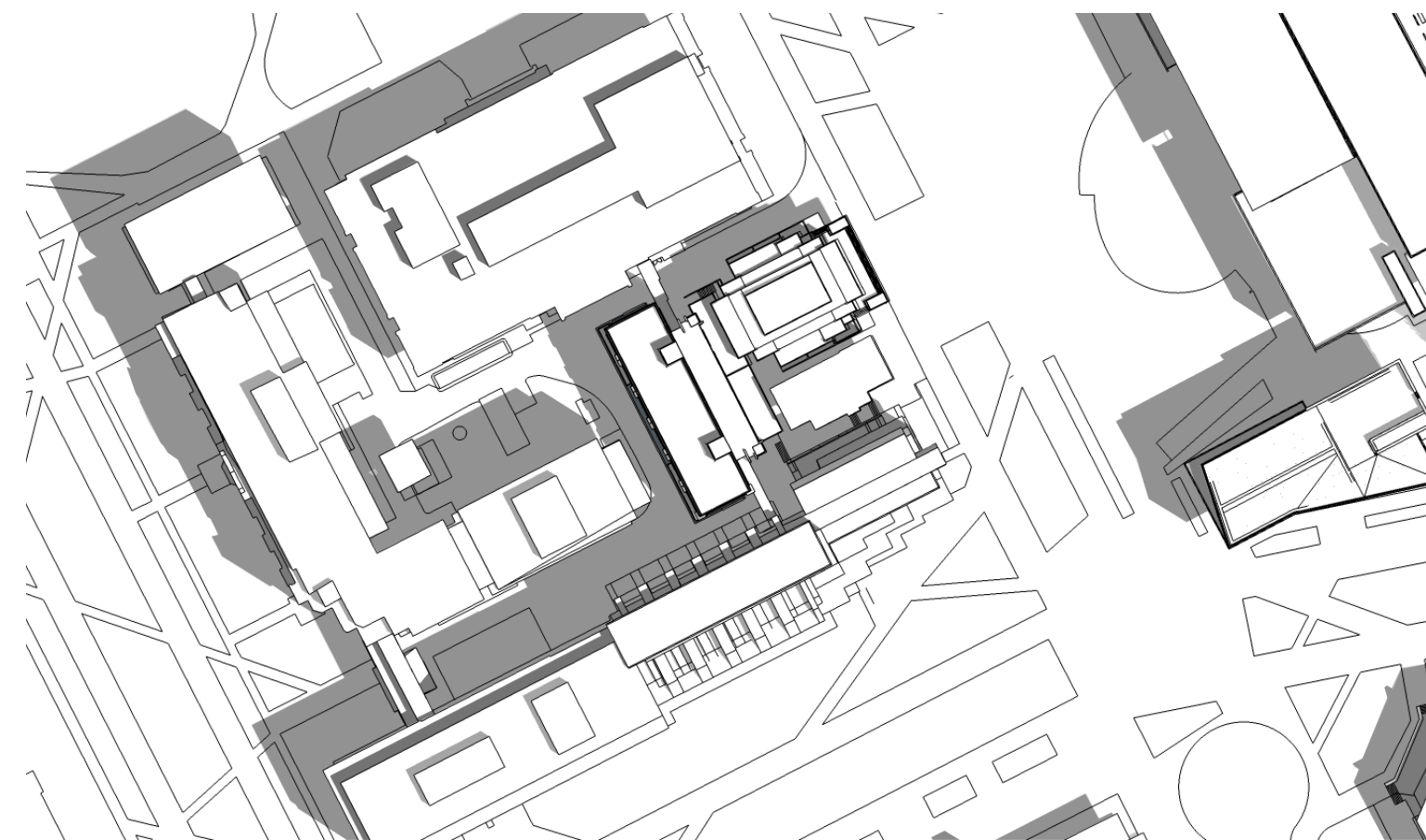
1 spring 10:00am



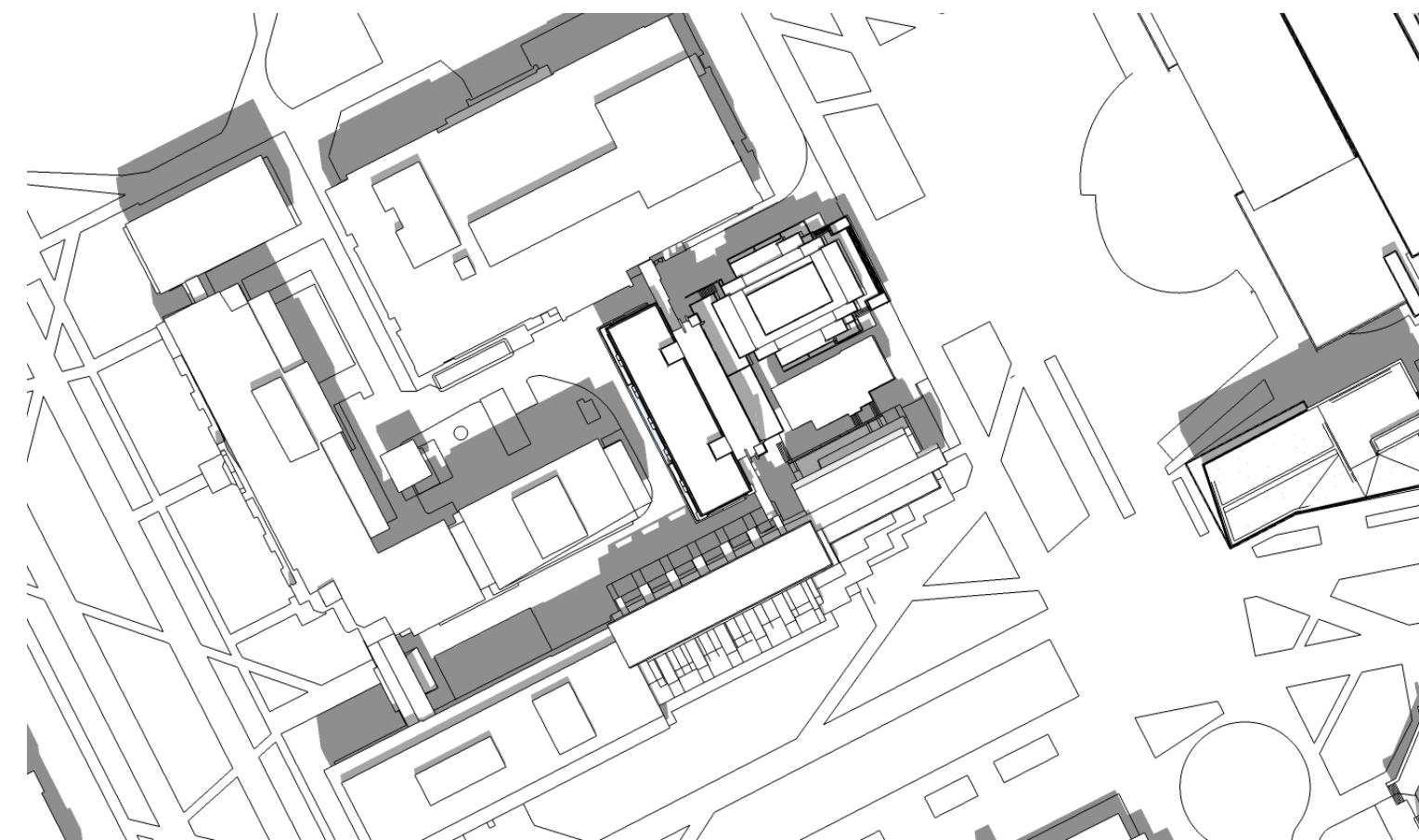
2 spring 12:00pm



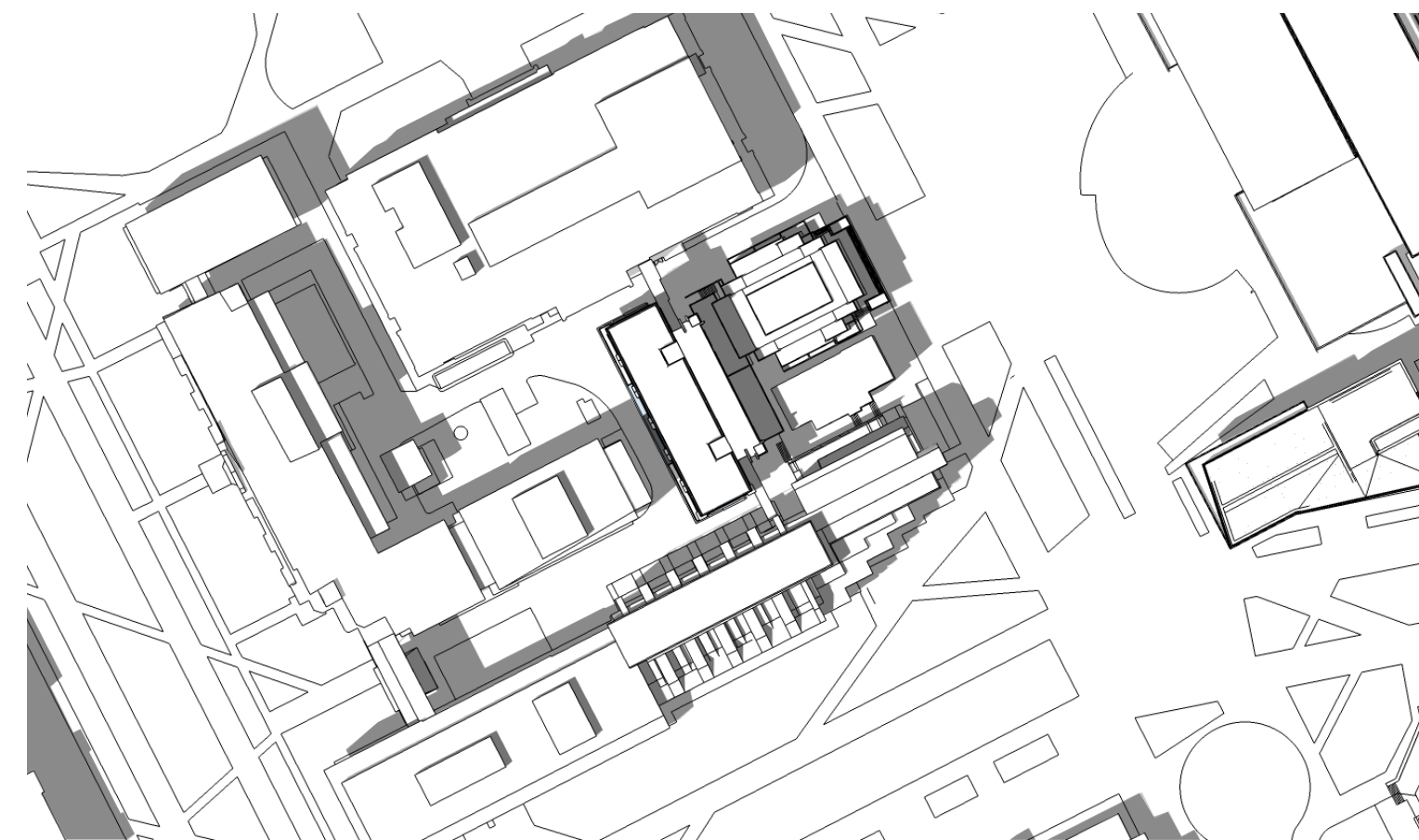
3 spring 2:00pm



4 summer 10:00am



5 summer 12:00pm



6 summer 2:00pm

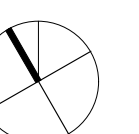
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**UBC Hebb Building  
Upgrade**

University of British Columbia  
2045 East Mall

scale	date
nts	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA



**Shadow Study**

drawing number  
**A005**






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**Issues**  
20 Jun 2017 Issued for Development Permit

**Legend**

-  New Structure
-  Existing Structure
-  Existing Wall
-  New Wall
-  Area of Addition



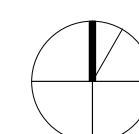
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**UBC Hebb Building Upgrade**

University of British Columbia  
2045 East Mall

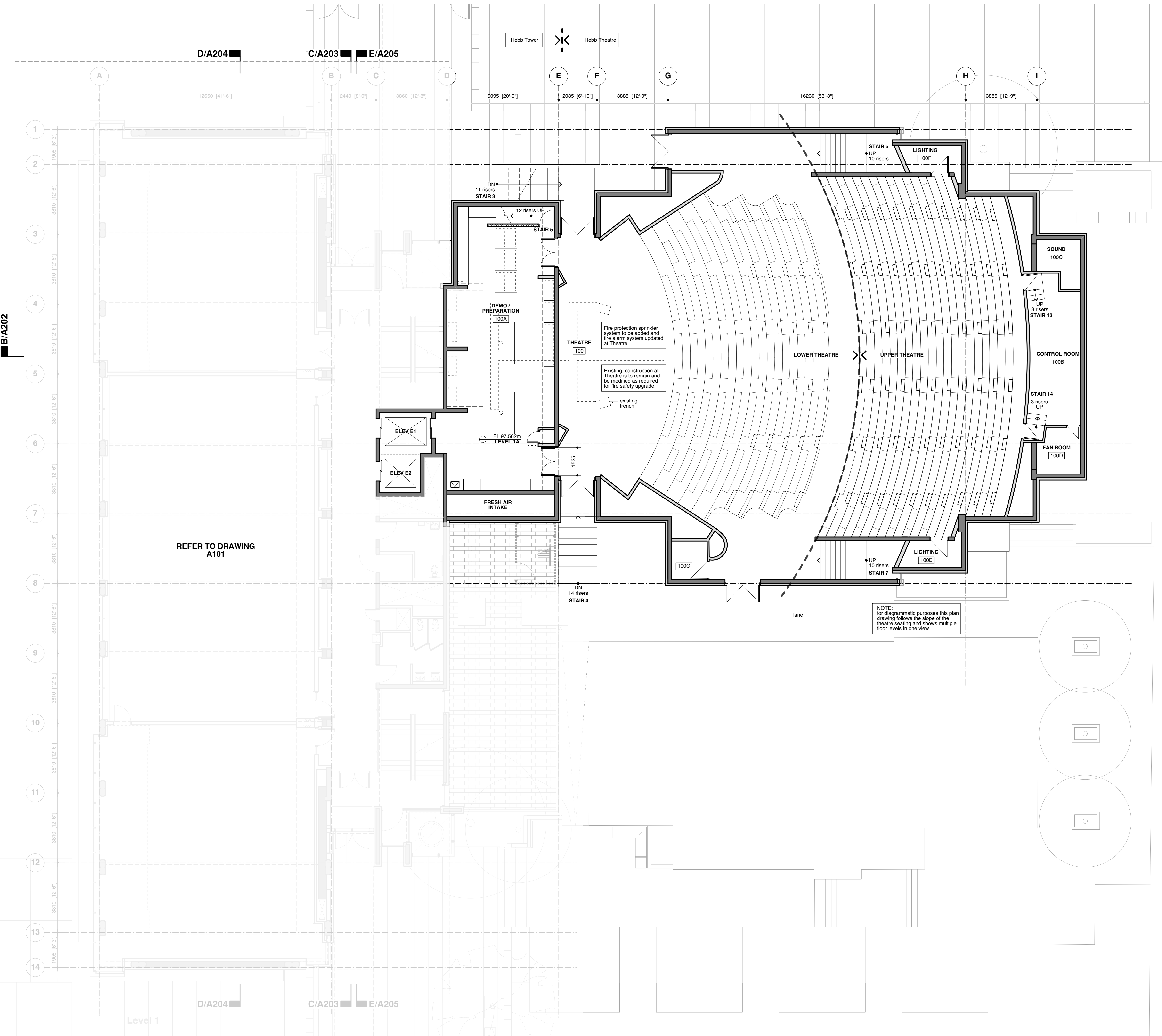
scale	date
1:100	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA



**Basement Plan**

drawing number  
**A100**





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**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall
- Area of Addition

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20 Jun 2017 Issued for Development Permit

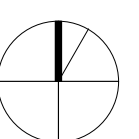
**ACTON OSTRY ARCHITECTS INC.**

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**UBC Hebb Building Upgrade**

University of British Columbia  
2045 East Mall

scale	date
1:100	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA





**General Notes**

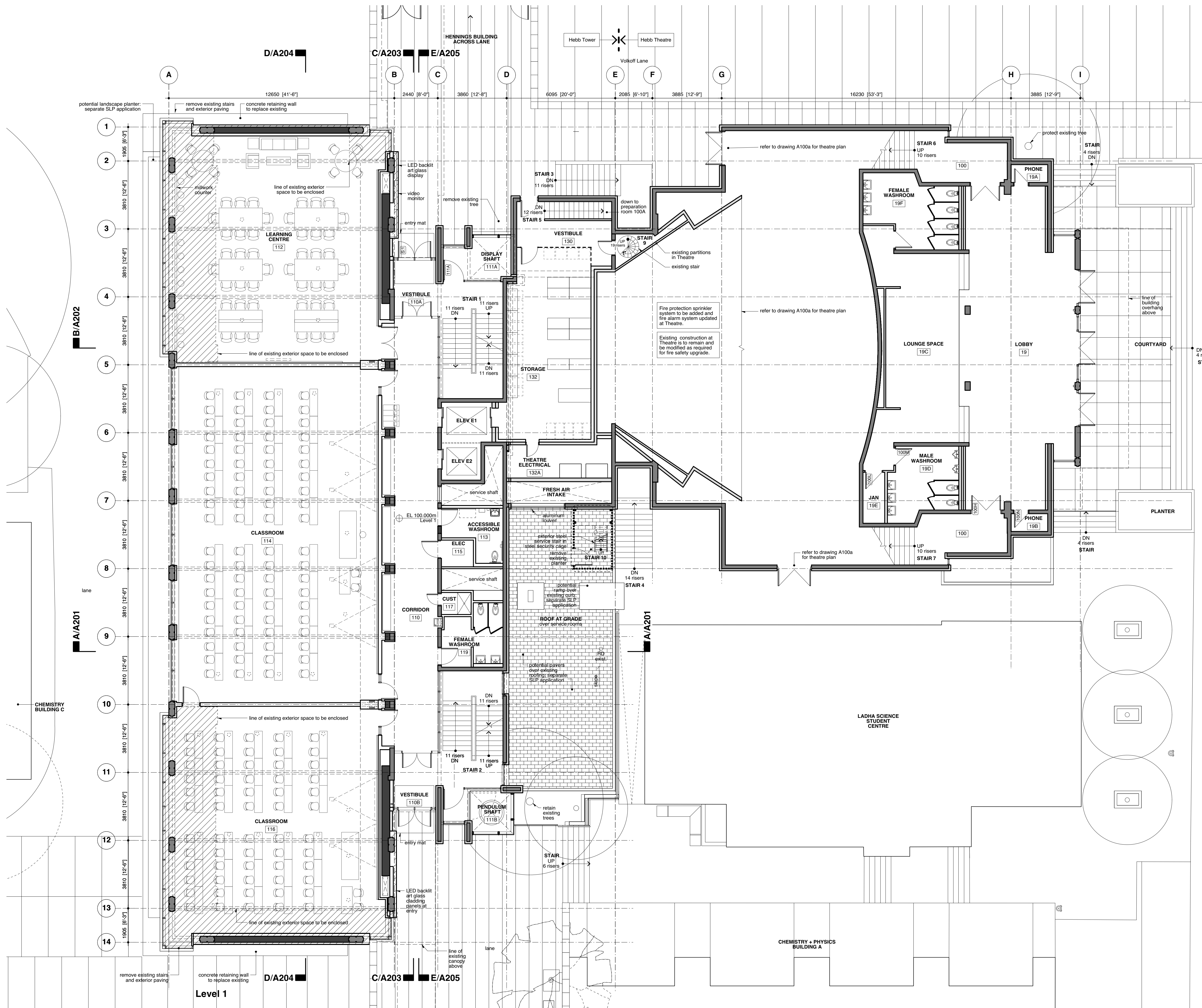
- Survey information is derived from survey file 8813hp-27 updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.
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377'3" architectural design  
drawings issued previously for existing building  
87.07m survey file updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.

**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall
- Area of Addition

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20 Jun 2017 Issued for Development Permit



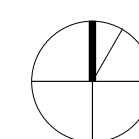
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**UBC Hebb Building Upgrade**

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project code	status
HEBB	DP
drawn	checked
SH	NS/RA



**Level 1 Plan**

drawing number  
A101






**General Notes**

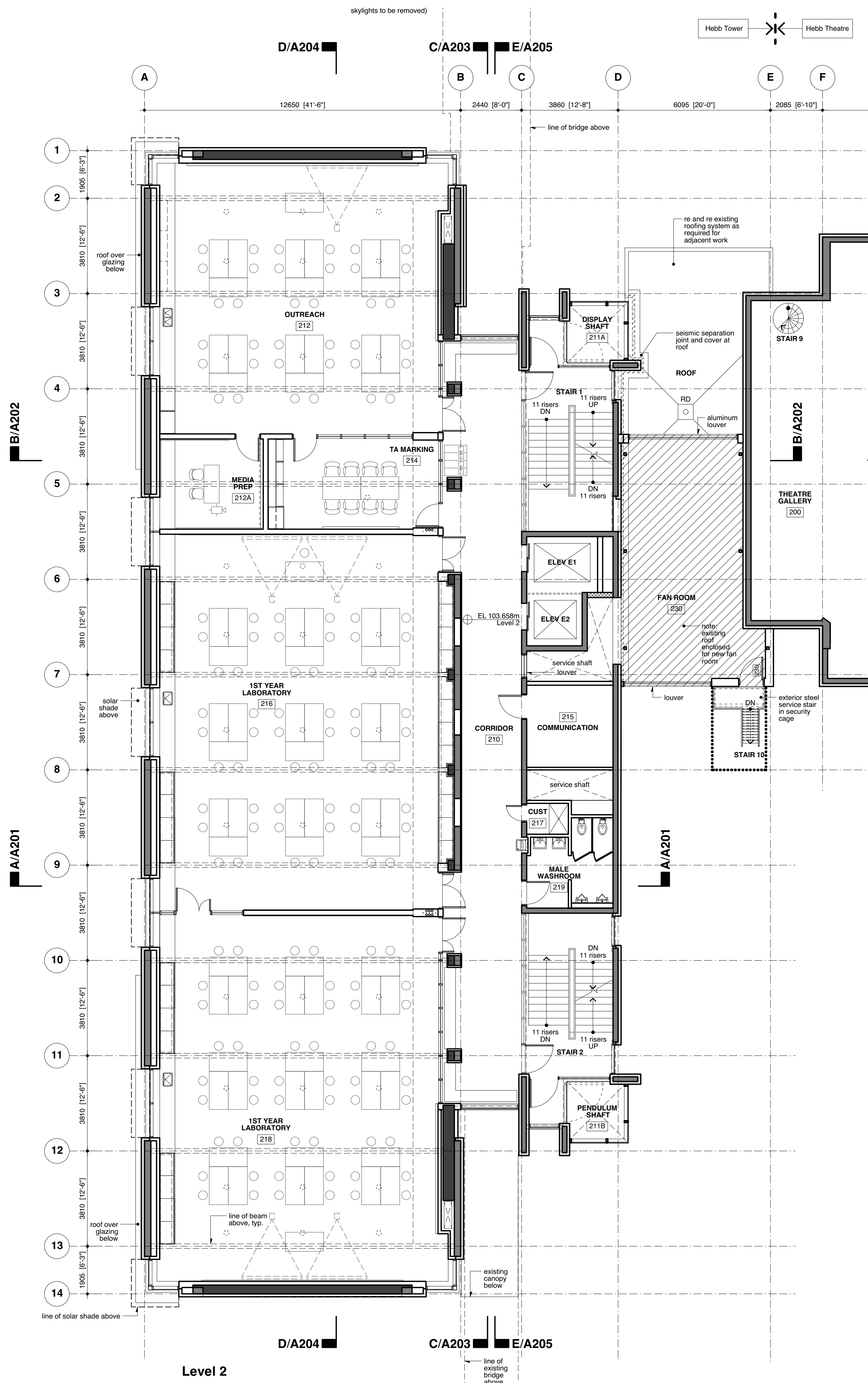
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**Issues**  
20 Jun 2017 Issued for Development Permit

**Legend**

-  New Structure
-  Existing Structure
-  Existing Wall
-  New Wall
-  Area of Addition



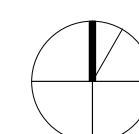
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**UBC Hebb Building Upgrade**

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1:100	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA

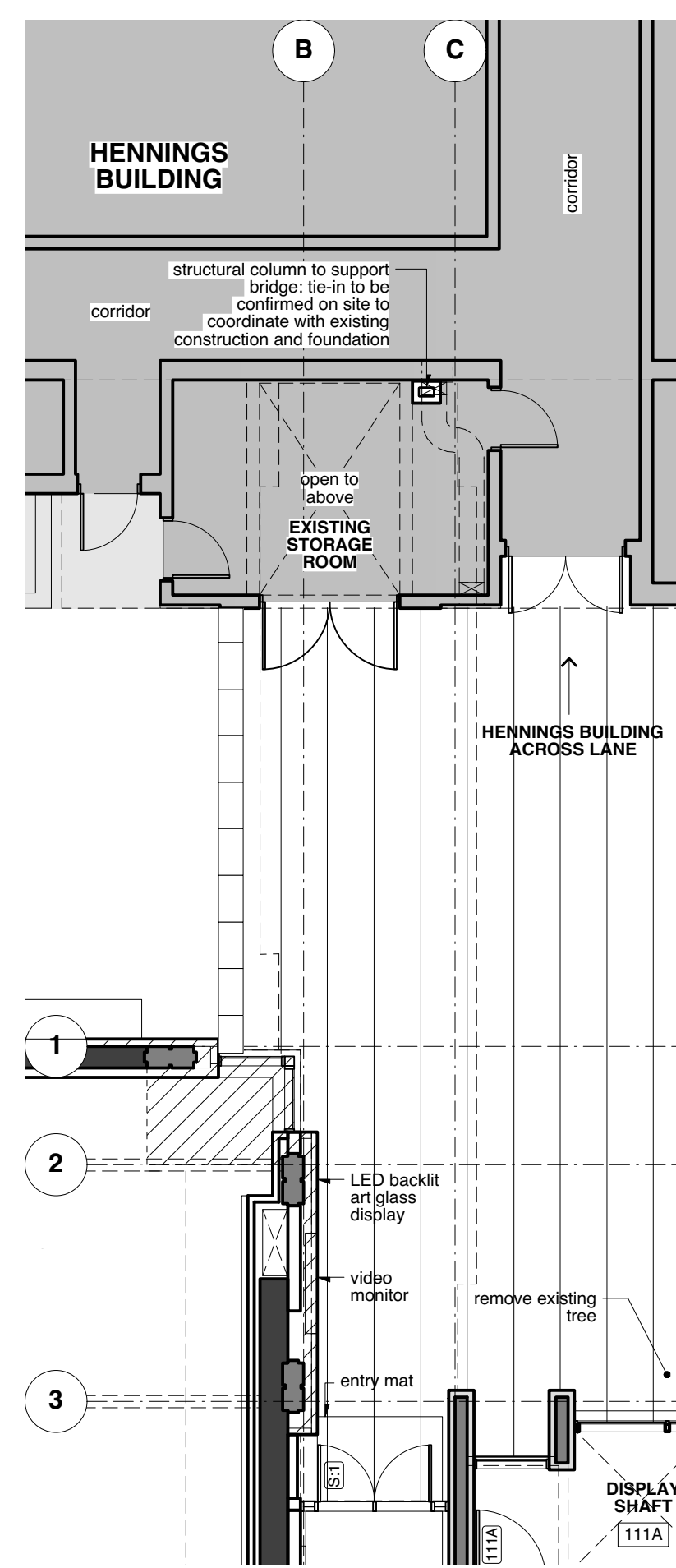


**Level 2 Plan**

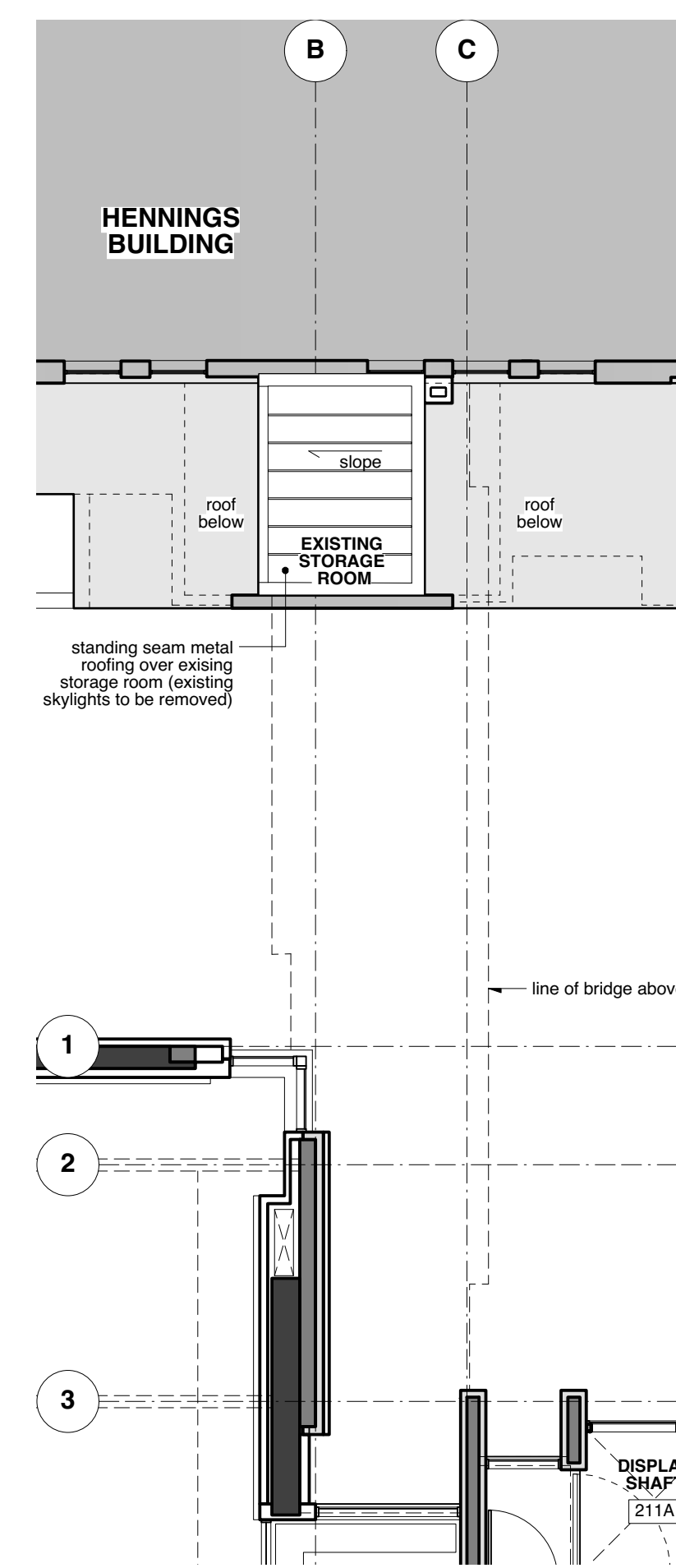
drawing number  
**A102**



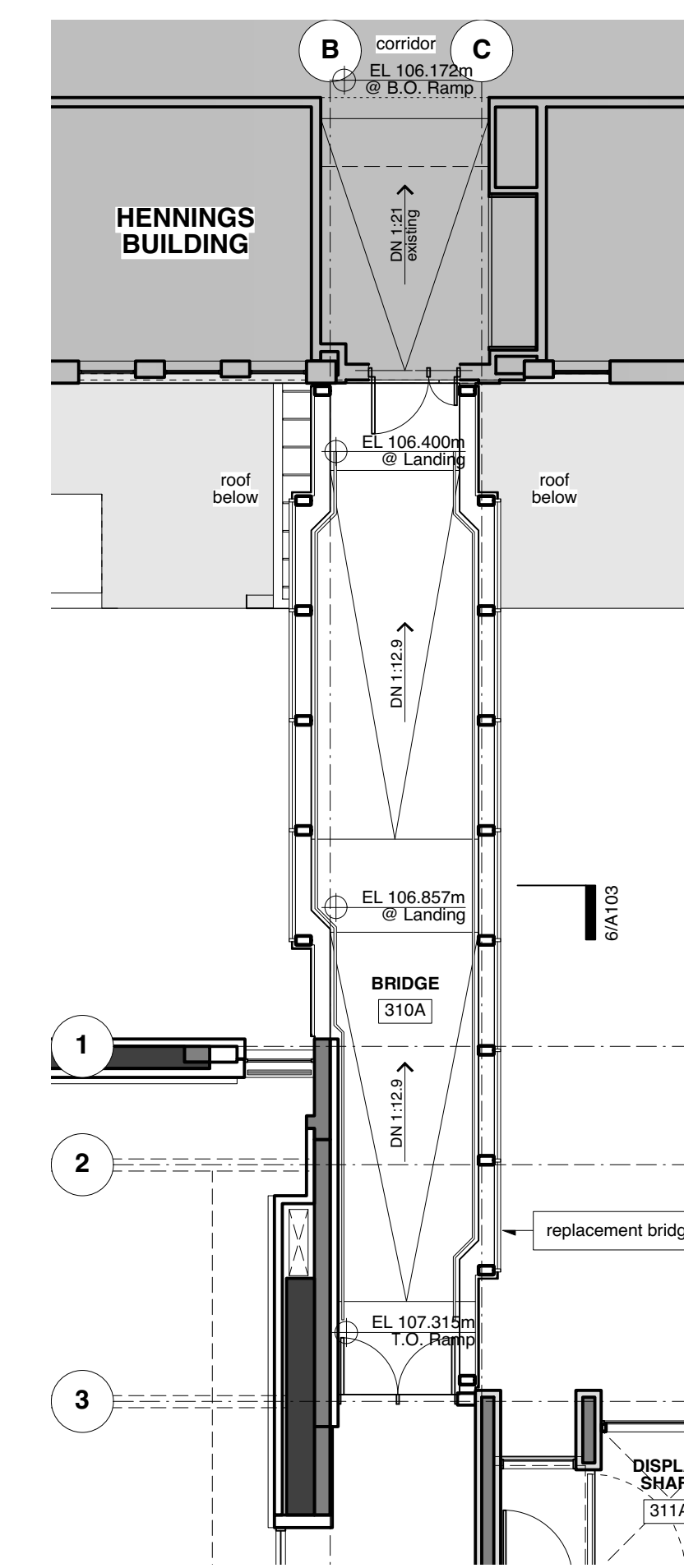
1 L3 Floor Plan  
1:100



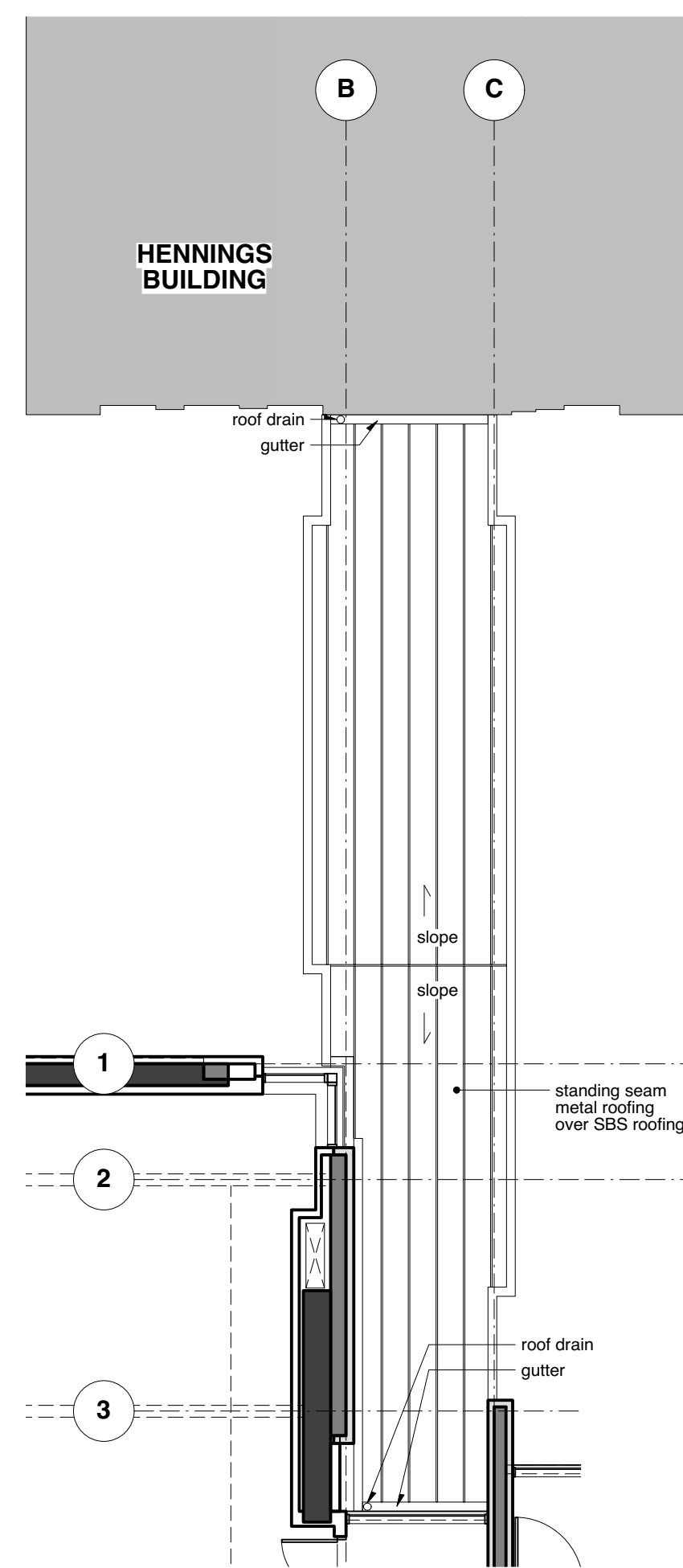
2 /A101 Level 1 Below Replacement Bridge  
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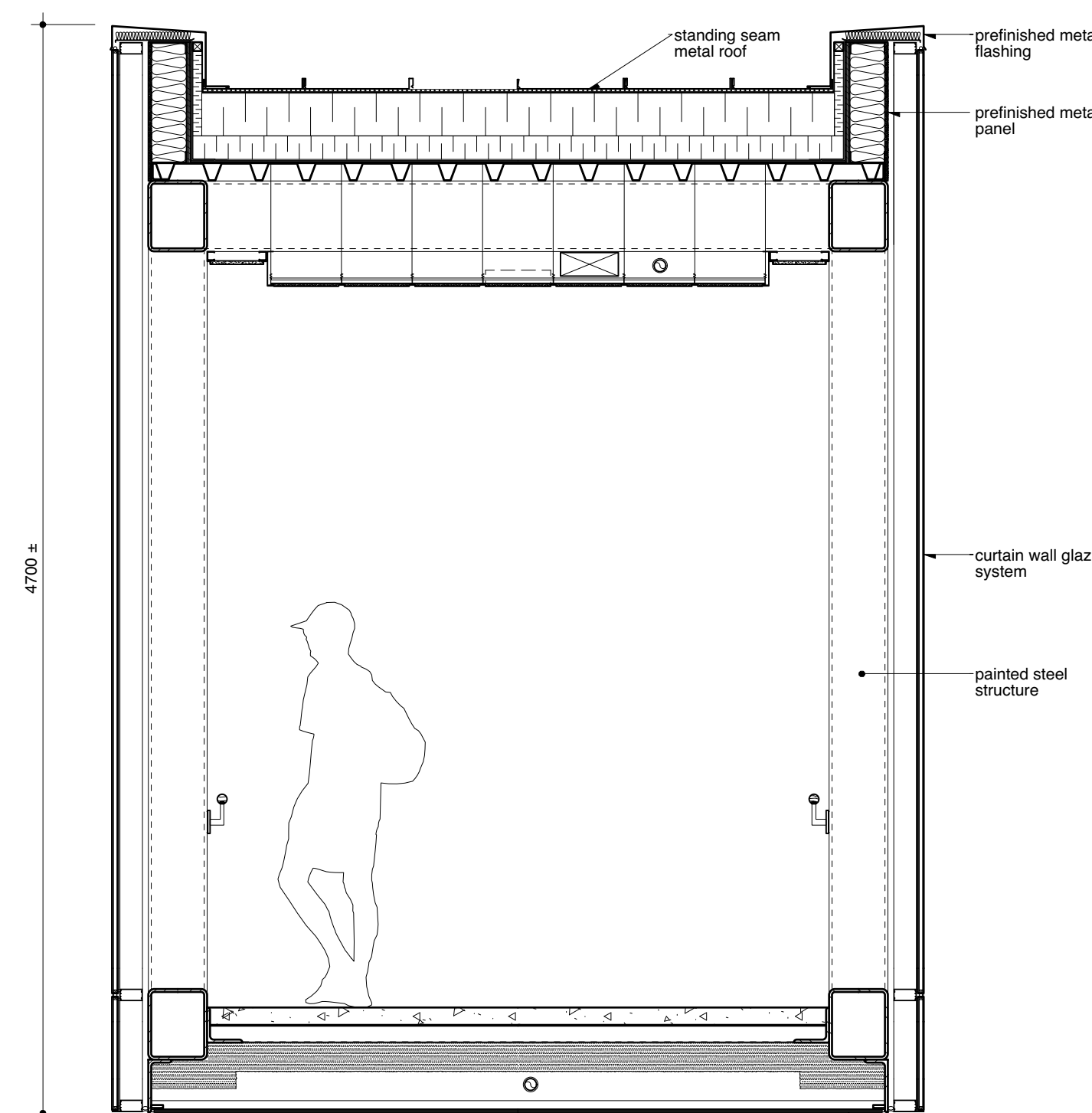
3 /A102 Level 2 Below Replacement Bridge  
1:100



4 /A103 Level 3 Replacement Bridge Plan  
1:100



5 /A104 Level 4 Replacement Bridge Roof Plan  
1:100



6 /A103 Replacement Bridge Cross Section  
1:25

- General Notes**
- Survey information is derived from survey file 8813hp-07 updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.
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87.07m survey file updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.

**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall
- Area of Addition

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## UBC Hebb Building Upgrade

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project code	status
HEBB	DP
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SH	NS/RA

**Level 3 Plan + Replacement Bridge Details**  
drawing number  
**A103**

**General Notes**

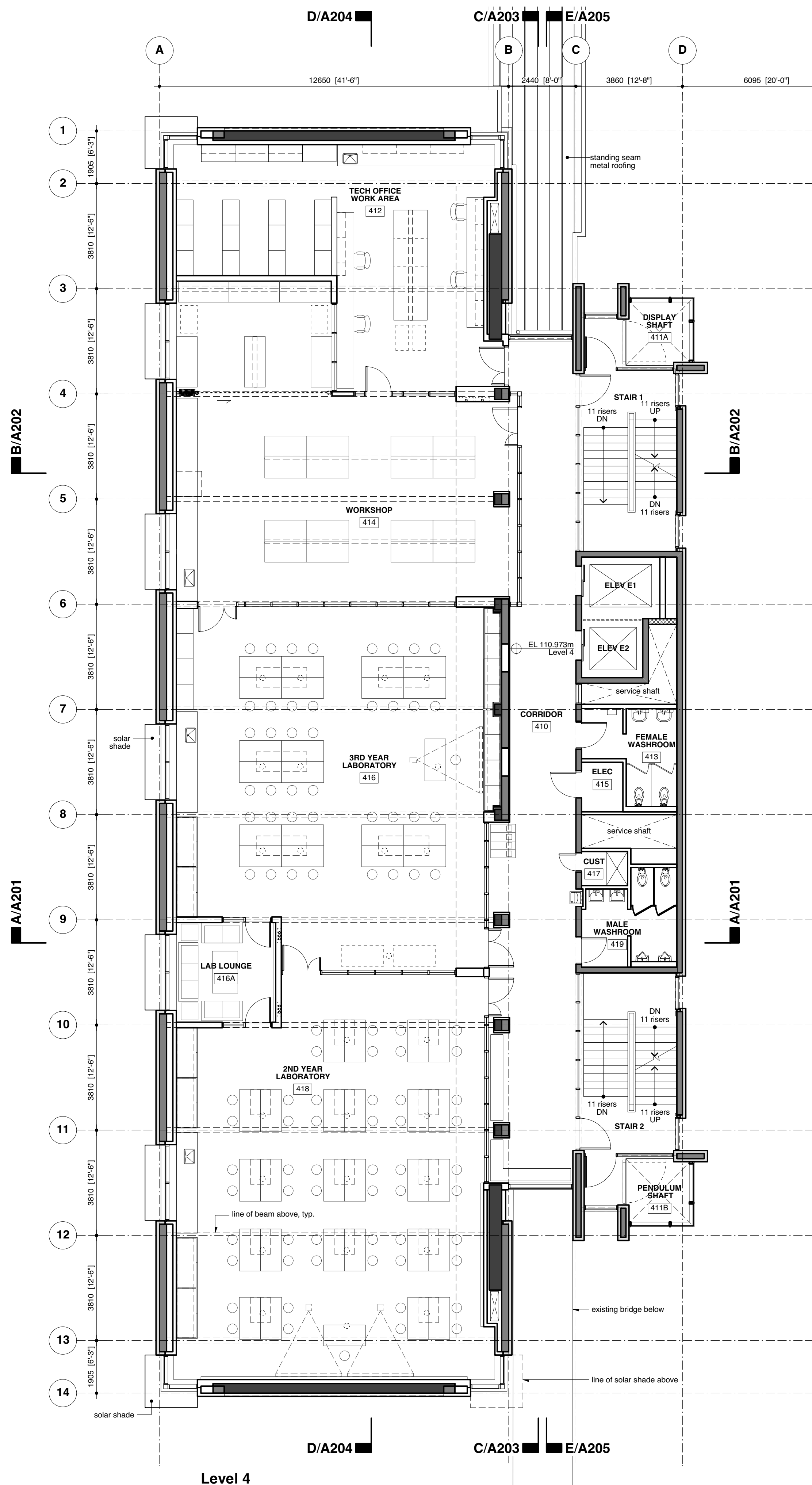
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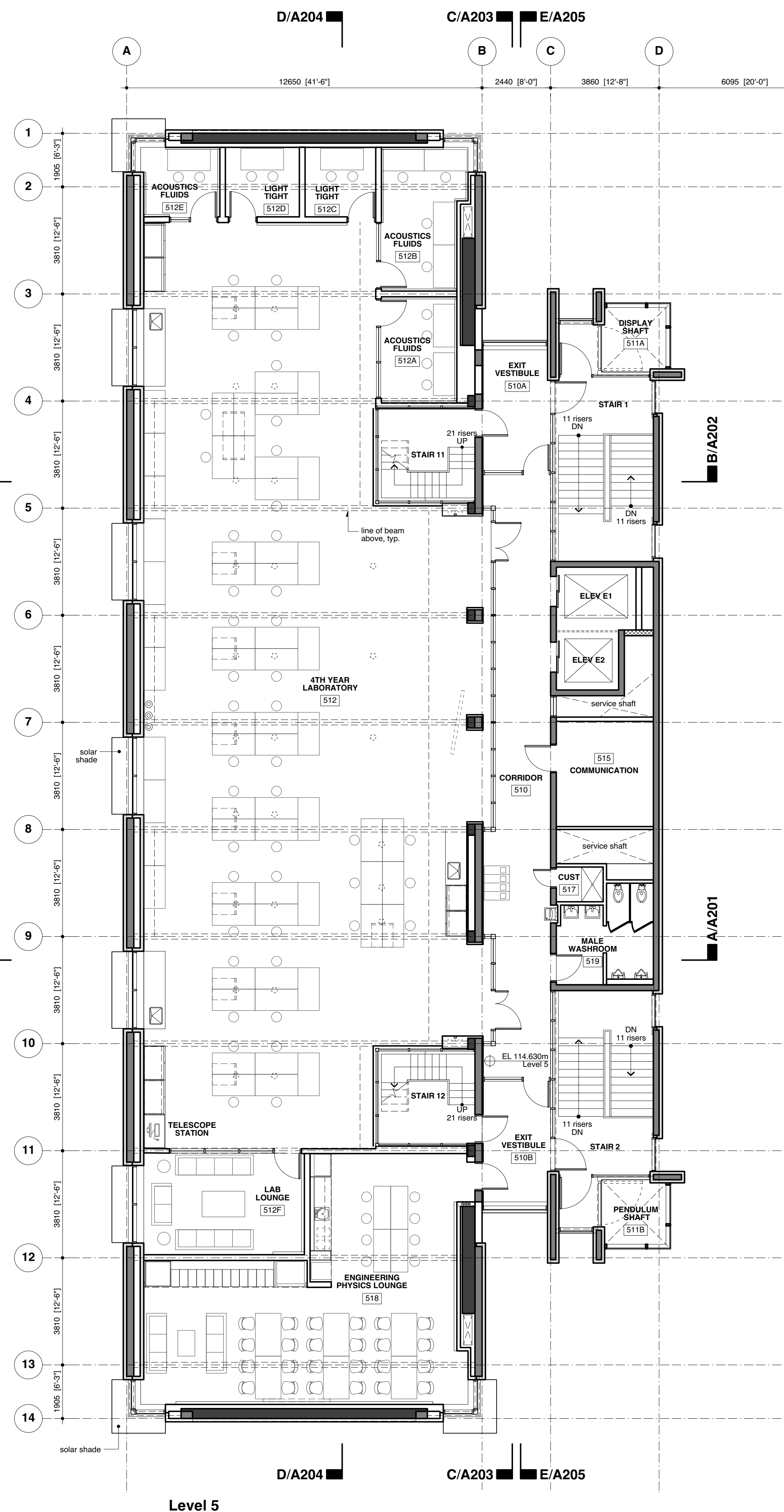
**Issues**  
20 Jun 2017 Issued for Development Permit

**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall
- Area of Addition



Level 4



Level 5

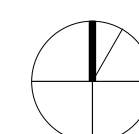
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project code	status
HEBB	DP
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**Level 4 + 5 Plans**






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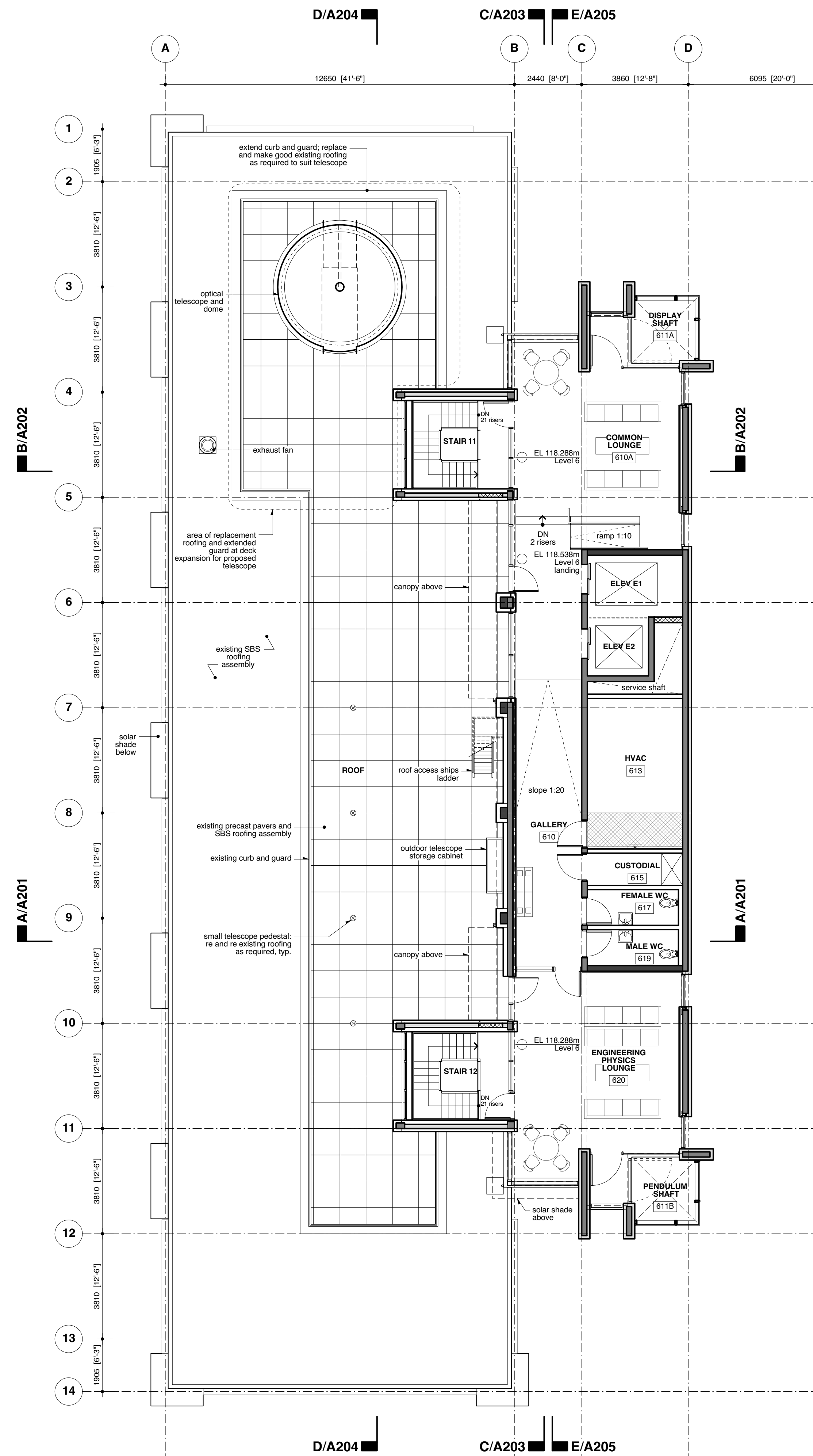


**General Notes**

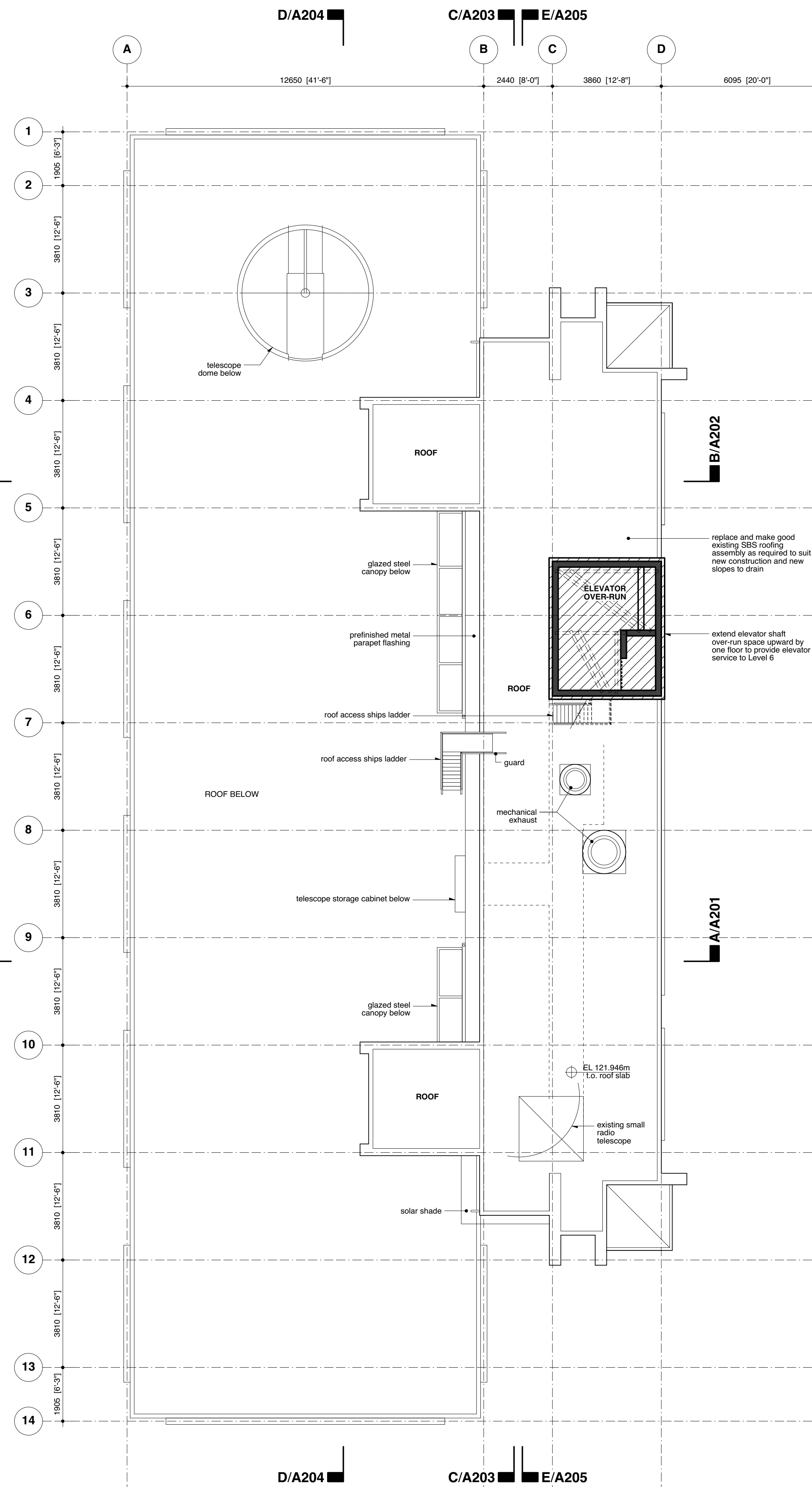
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**Legend**

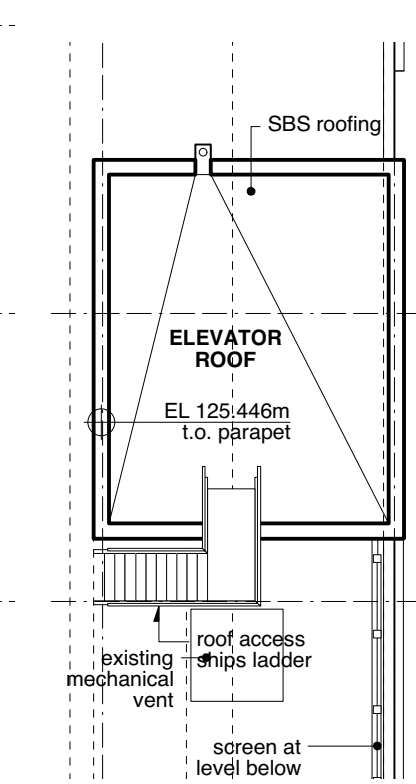
-  New Structure
-  Existing Structure
-  Existing Wall
-  New Wall
-  Area of Addition



Level 6



Level 7 Roof



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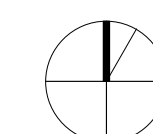
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**UBC Hebb Building Upgrade**

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2045 East Mall

scale	date
1:100	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA



**Level 6 + 7 + 8 Plans**

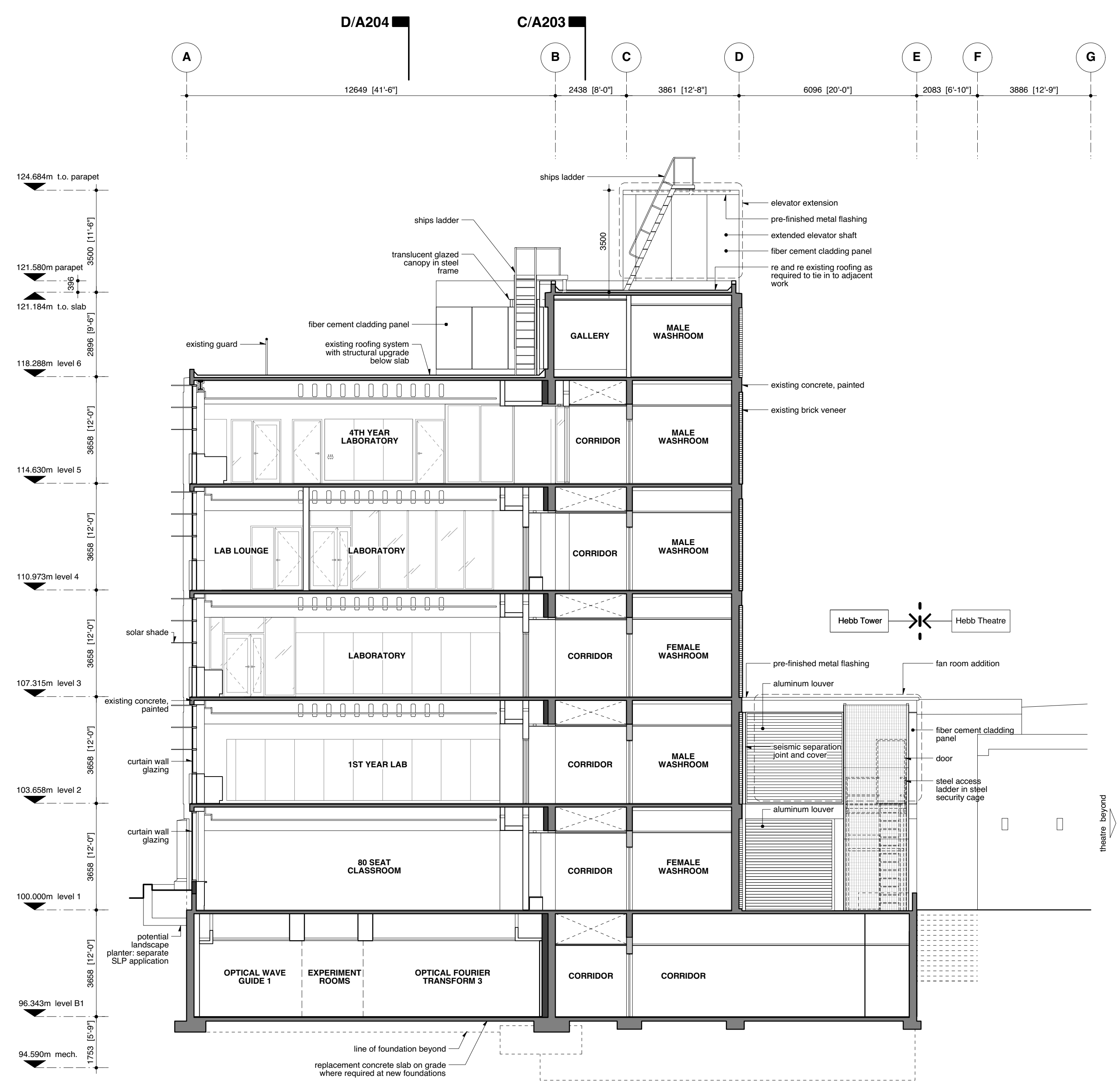
drawing number  
**A105**

**General Notes**

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**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall



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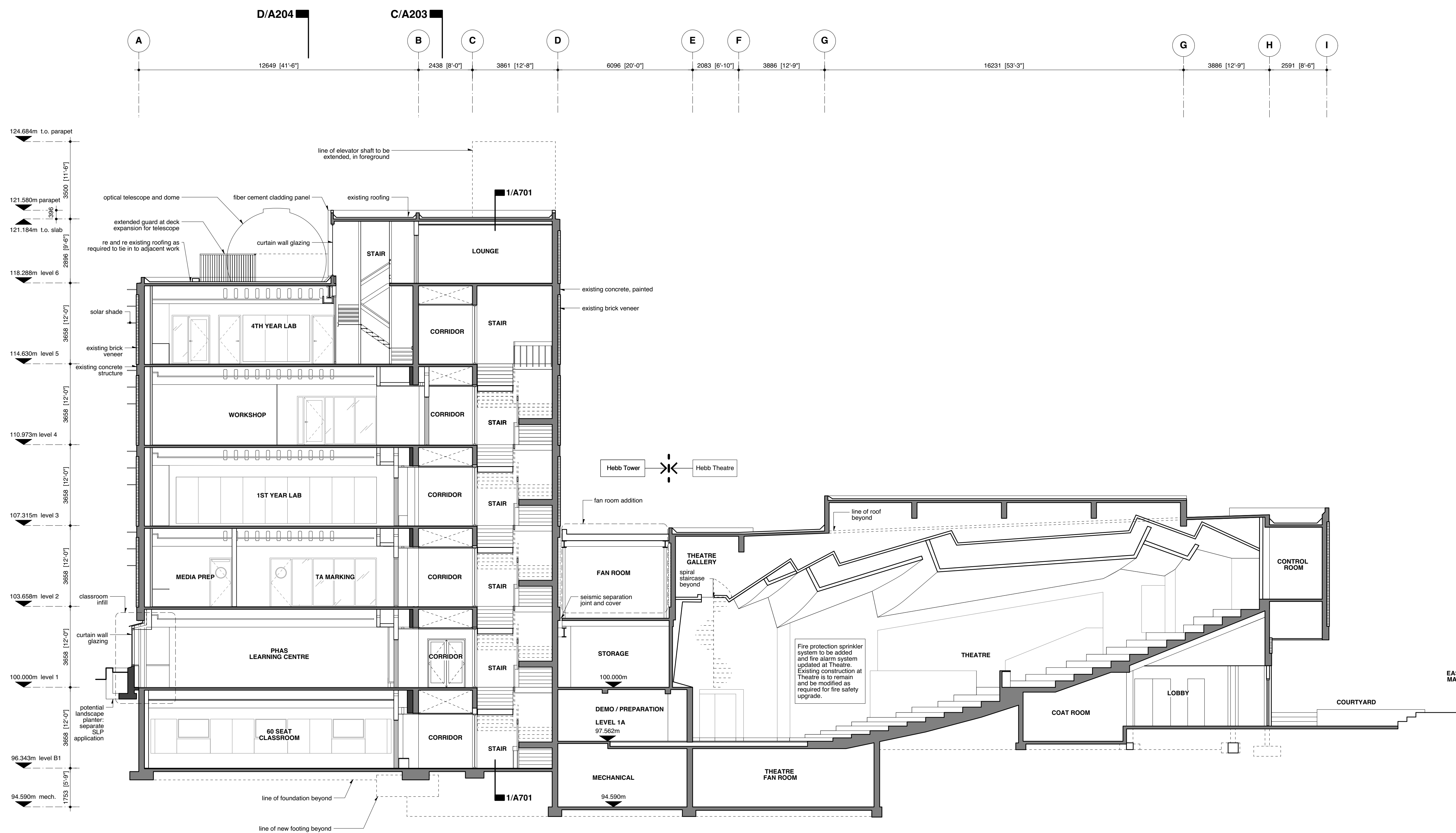
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**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall



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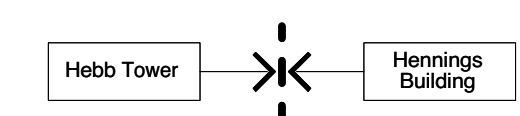
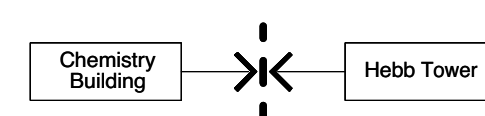
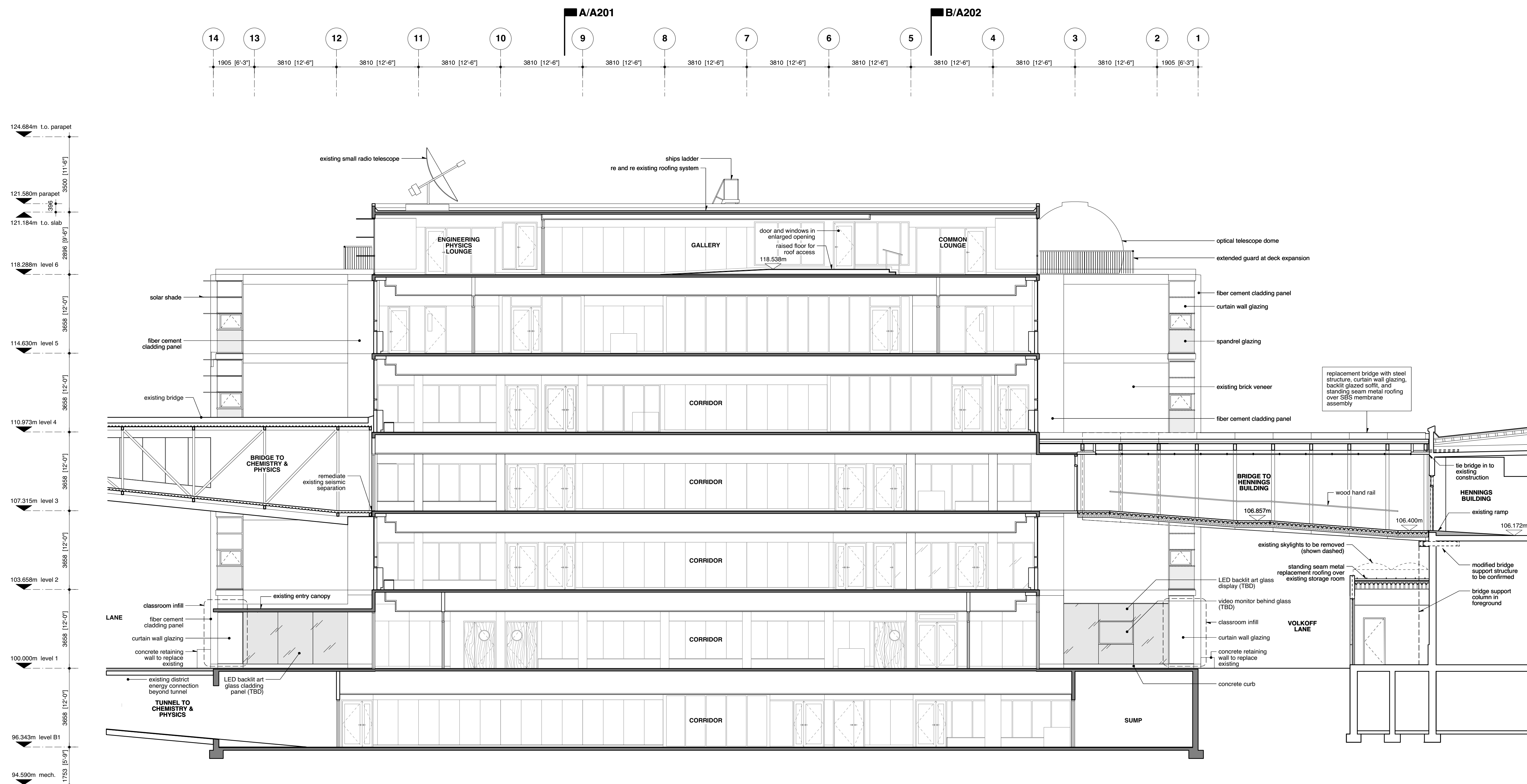
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**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall



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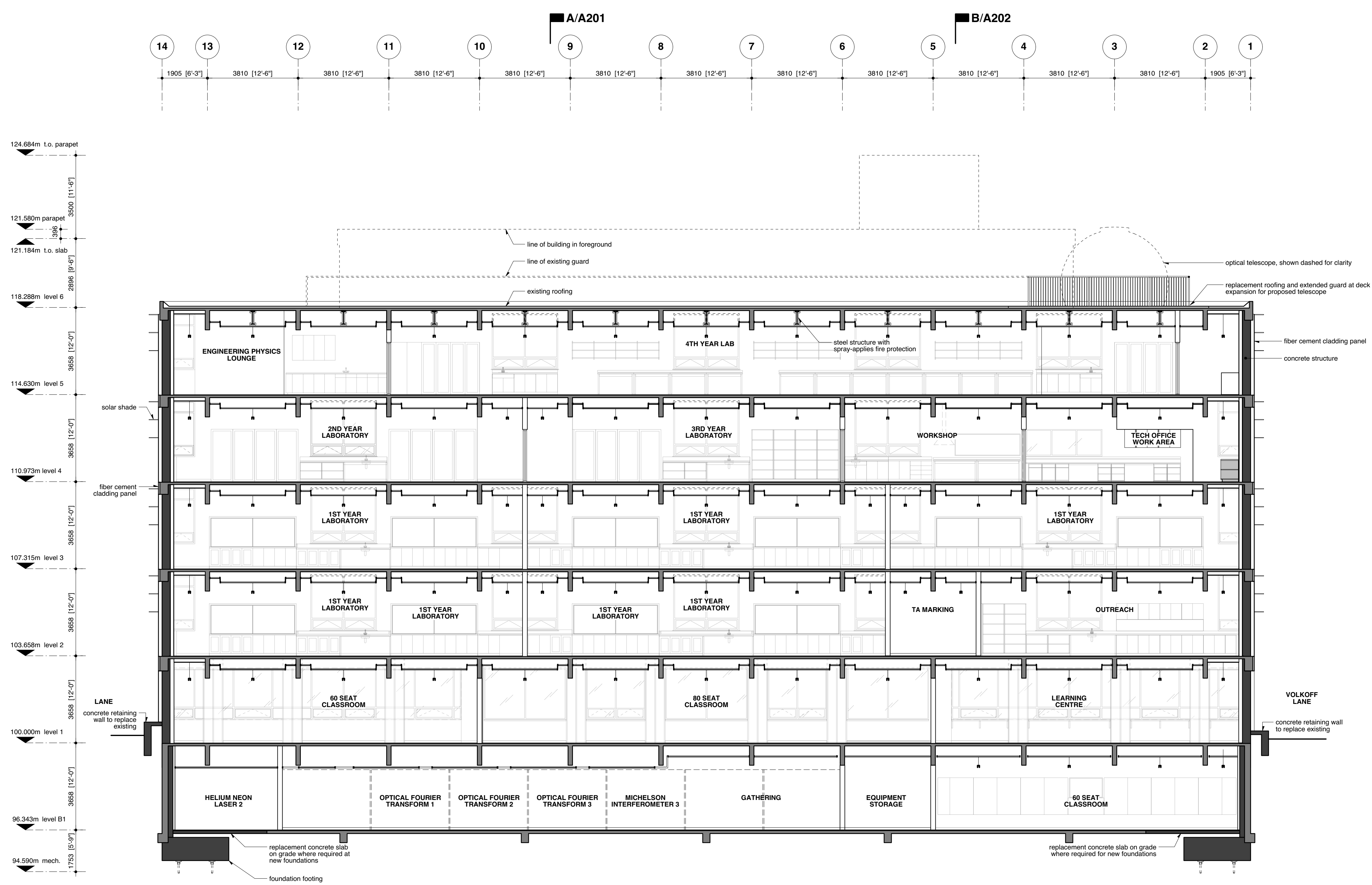
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**Legend**

- New Structure
- Existing Structure
- Existing Wall
- New Wall

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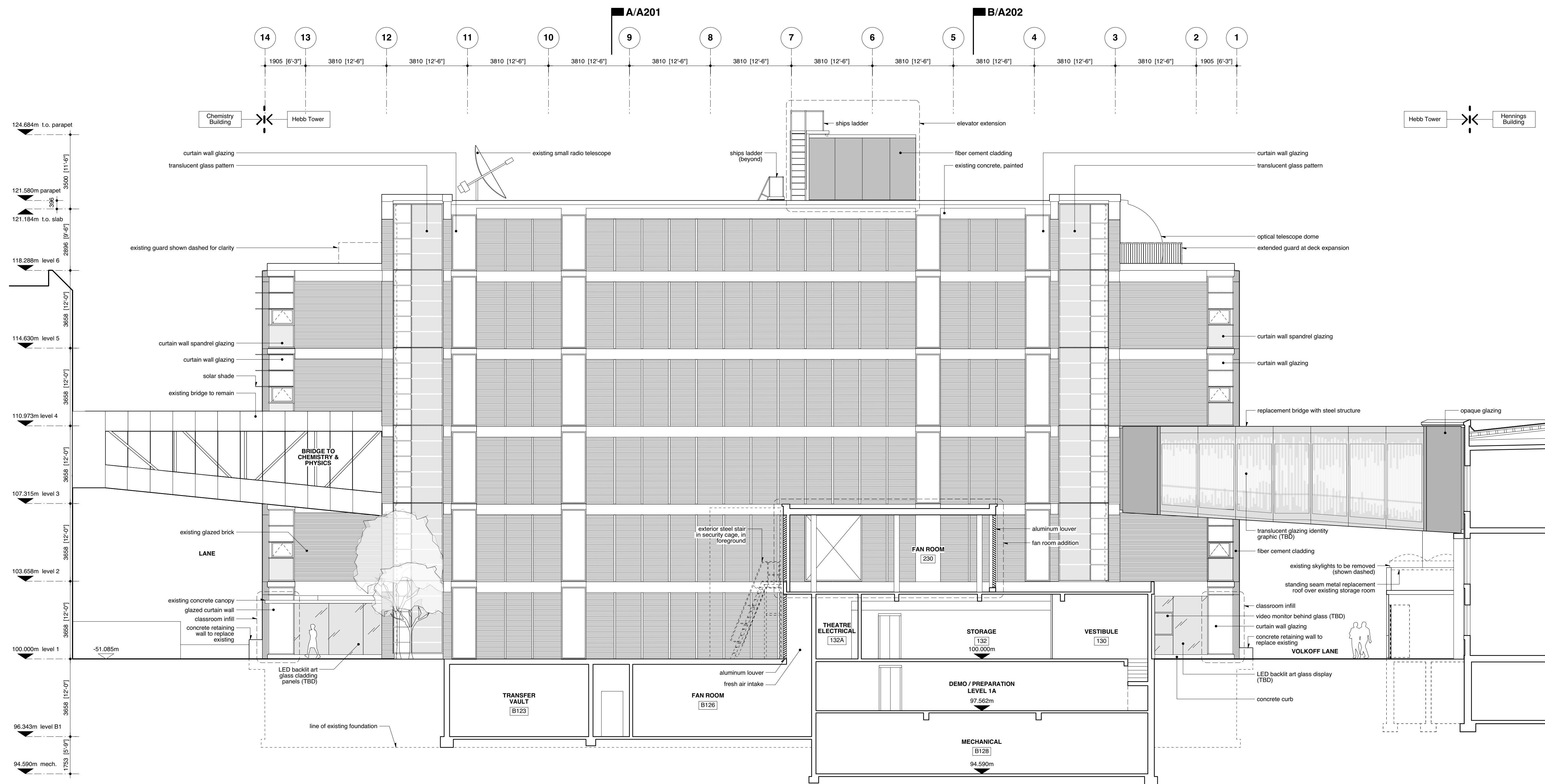
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SH	NS/RA

**East Elevation**

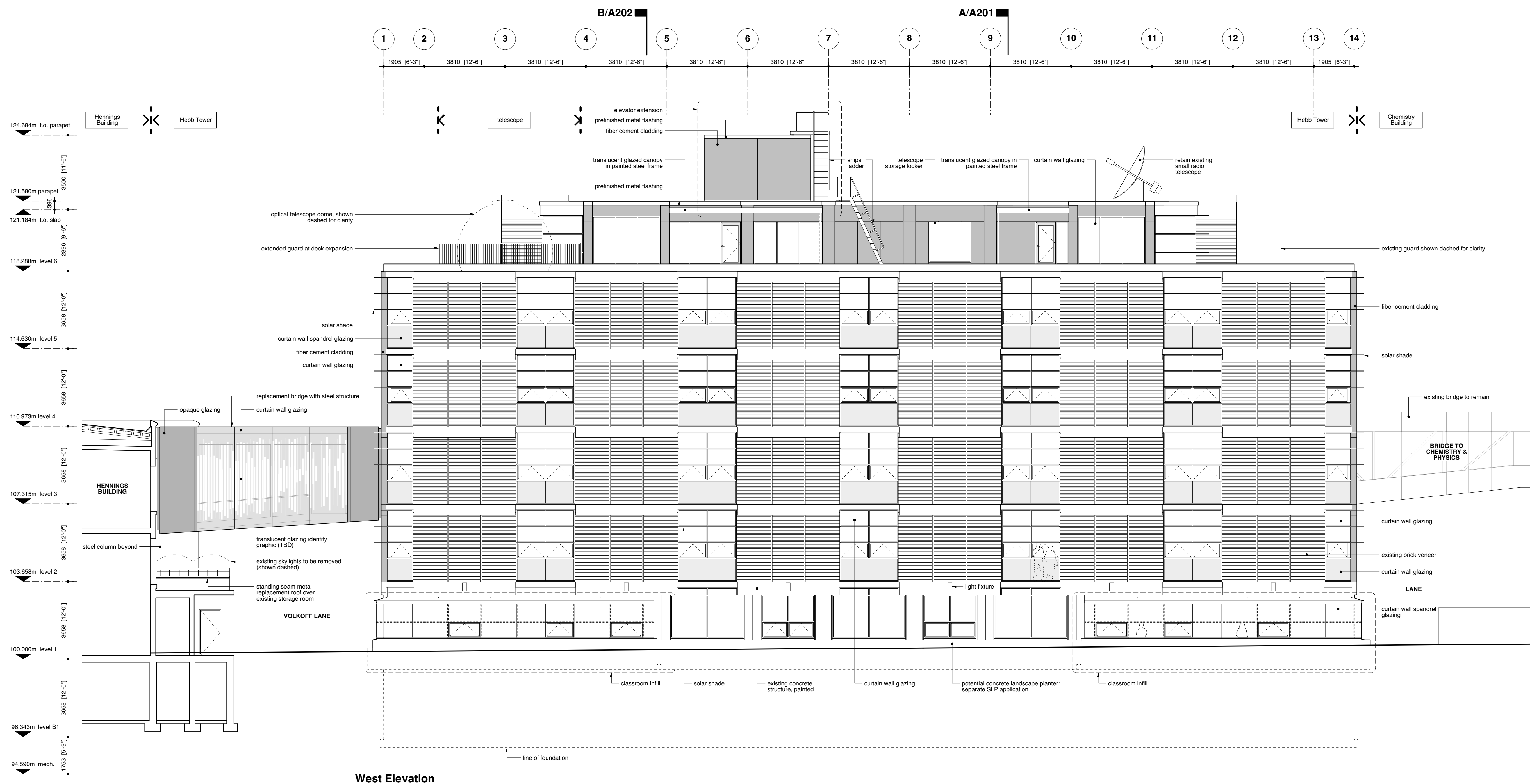
drawing number  
**A301**

**General Notes**

- Survey information is derived from survey file 8813hg-27 updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.
- Information regarding existing buildings and site is based upon survey noted above by Murray & Associates as well as the following drawings by others. Drawings with later dates supersede portions of drawings with earlier dates: Thompson Berwick & Pratt dated 1962 (Teaching Addition to The Physics Building), Ulrich Laska Architect dated 1994 (Hebb Theatre Renovations), B. Gordon H. Lynsky Architect Inc. dated 2008 (Hebb Building - Floor 3 Renovations), Ausenco Engineering Canada Inc. (Hebb Theater Building Seismic Upgrade).
- All dimensions are to be confirmed on site.
- Architectural elevation datum 100.000m = top of floor at Level 1.
- Architectural Elevation datum 100.000m is equal to the following elevation data:  
377'3" architectural design drawings issued previously for existing building  
87.07m survey file updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.

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**Issues**  
20 Jun 2017 Issued for Development Permit



**West Elevation**

**ACTON OSTRY ARCHITECTS INC**

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**UBC Hebb Building Upgrade**

University of British Columbia  
2045 East Mall

scale	date
1:100	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA

**West Elevation**

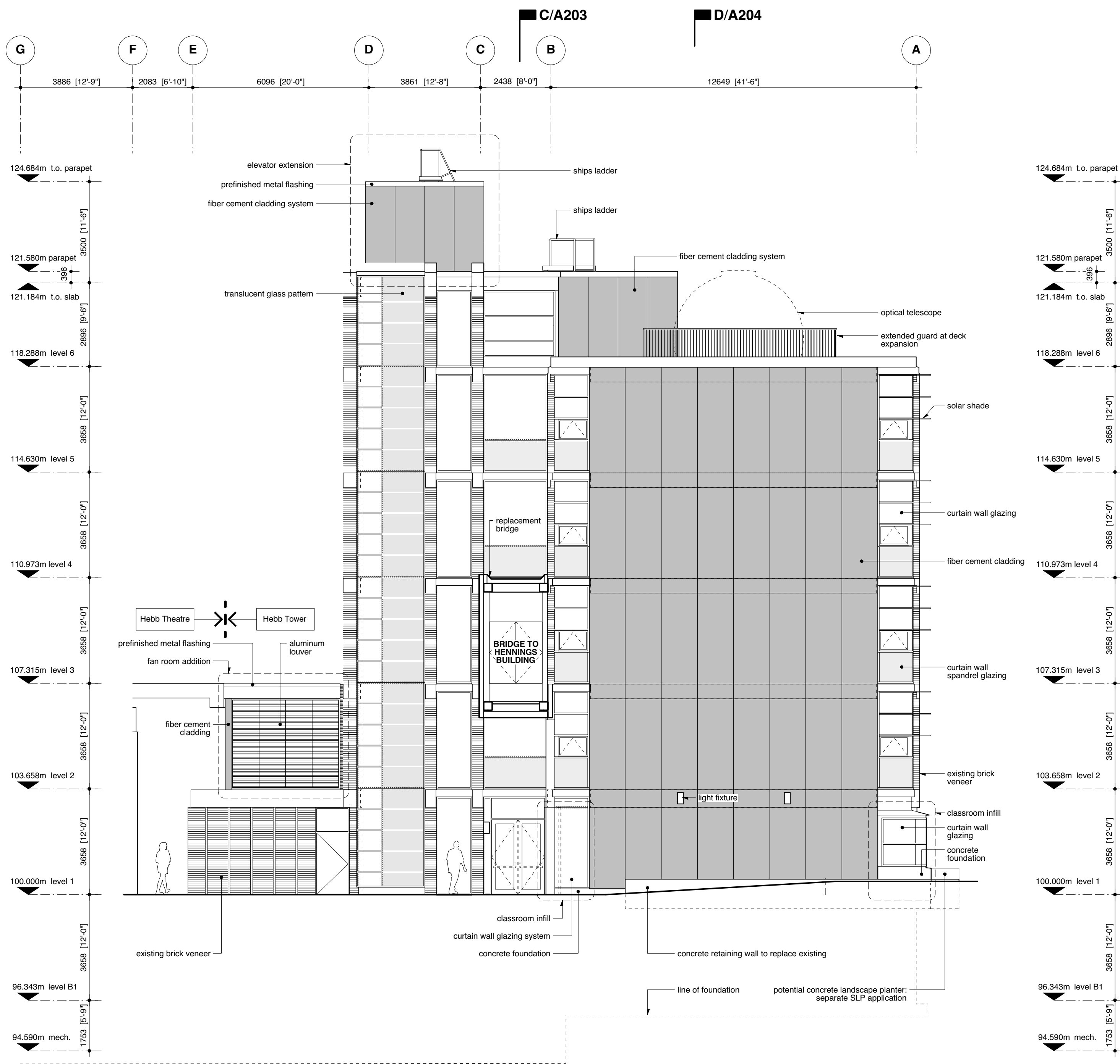
drawing number  
**A302**

**General Notes**

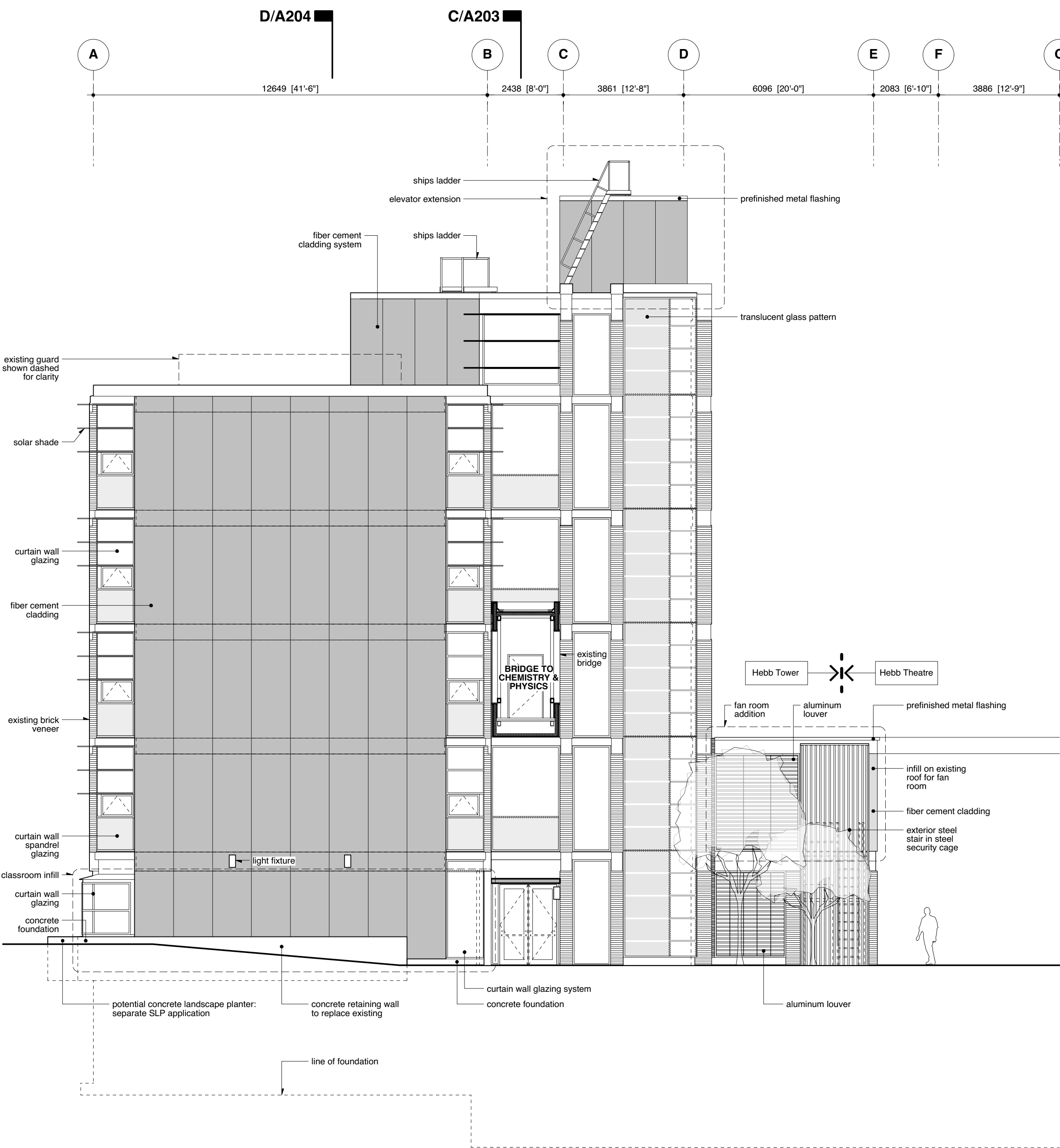
- Survey information is derived from survey file 8813hg-27, updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.
- Information regarding existing buildings and site is based upon survey noted above by Murray & Associates as well as the following drawings by others. Drawings with later dates supersede portions of drawings with earlier dates: Thompson Berwick & Pratt dated 1962 (Teaching Addition to The Physics Building), Ulrich Laska Architect dated 1994 (Hebb Theatre Renovations), B. Gordon H. Lynsky Architect Inc. dated 2008 (Hebb Building - Floor 3 Renovations), Ausenco Engineering Canada Inc. (Hebb Theater Building Seismic Upgrade).
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87.07m survey file updated 27 January 2017 by Murray & Associates, 201-12448 82nd Avenue, Surrey BC, V3W 3E9.

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**Issues**  
20 Jun 2017 Issued for Development Permit



**North Elevation**



**South Elevation**

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**UBC Hebb Building Upgrade**

University of British Columbia  
2045 East Mall

scale	date
1:100	20 Jun 2017
project code	status
HEBB	DP
drawn	checked
SH	NS/RA

# UBC - HEBB Building Upgrade

2045 East Mall

ISSUED FOR DP

LANDSCAPE ARCHITECTURAL ABBREVIATIONS

AD	Area Drain	NIC	Not in Contract
ALT	Alternate	NO	Number
ALUM	Aluminum	NTS	Not to Scale
ARCH	Architect/ Architectural	OC	On Center
AVG	Average	OD	Outside Diameter/Dimension
B	Bottom	PA	Planting Area
BC	Bottom of Curb Elevation	PC	Point of Curvature
BLDG	Building	PERP	Perpendicular
BOL	Bollard	PI	Point of Intersection
BP	Bottom of Pool	PL	Property Line
BS	Bottom of Step/ Stair Elevation	PLNT	Plant/ Planting
BTW	Between	PO	Point of Origin
BW	Bottom of Wall Elevation	PP	Pedestrian Pole
CB	Catch Basin	PIP	Pour-in-Place
CIV	Civil	PSI	Pounds per Square Inch
CJ	Control Joint	PT	Point of Tangency
CIO	Clean out	QTY	Quantity
COJ	Construction Joint	R	Riser
COMP	Compacted	RA	Radius
CONC	Concrete	REBAR	Reinforcing Bar
DEG	Degree	REQ	Required
DET	Detail	ROW	Right of Way
DIA	Diameter	SB	Setback
DIM	Dimension	SHT	Sheet
DN	Down	SPEC	Specifications
DWG	Drawing	SECT	Section
EJ	Expansion Joint	SQ	Square
ENG	Engineer/ Engineering	SS	Stainless Steel
EQ	Equal	STA PT	Station Point
EX	Existing	STD	Standard
FC	Flush Curb	STL	Steel
FDN	Foundation	STR/STRUC	Structure/ Structural
FG	Finish Grade	T	Top
FH	Fire Hydrant	T+B	Top and Bottom
FIN	Finish	TAN	Tangency
FTG	Footing	TC	Top of Curb Elevation
FTN	Fountain	TD	Trench Drain
GALV	Galvanized	TEMP	Temporary
HEF	Horizontal Each Face	THK	Thick
HP	High Point	TOS	Top of Slab
HT	Height	TPZ	Tree Protection Zone
HWL	High Water Level	TS	Top of Step/ Stair Elevation
ID	Inside Diameter/Dimension	TW	Top of Wall Elevation
INCL	Include/ Including	TYP	Typical
JT	Joint	VERT	Vertical
LARCH	Landscape Architect	VEF	Vertical Each Face
LOW	Limit of Work	w/	with
LT	Light	w/o	without
LS	Light Standard / Light Pole	WF	Water Feature
M	Meters/ Metres	WJ	Water Jet
MAX	Maximum	WL	Water Level
MH	Manhole	WP	Waterproofing
MIN	Minimum		
MISC	Miscellaneous		

DRAWING LIST

<b>GENERAL</b>	
L0.00	DRAWING INDEX + GENERAL INFORMATION
	<b>LANDSCAPE ARCHITECTURAL DRAWINGS</b>
L1.00	LANDSCAPE PLAN
L1.00	LANDSCAPE PLANTING PLAN
L3.00	LANDSCAPE LIGHTING PLAN
L4.00	LANDSCAPE DETAILS
L4.01	LANDSCAPE DETAILS

GENERAL NOTES

Existing survey information is based on the following drawings:

1. TOPOGRAPHIC SURVEY BY UBC. FILE NO. 8613hq-27. DATED: JAN 25, 2017

Civil information is based on the following drawings:

1. N/A

Architectural information is based on the following drawings:

1. PROVIDED BY ACTON OSTRY ARCHITECTS INC. PROJECT CODE: HEBB. DATED: JUN 13, 2017

1. GRIDLINES SHOWN ON LANDSCAPE DRAWINGS ARE AS PER ARCHITECTURAL LAYOUT.

2. DO NOT SCALE DRAWINGS. USE DIMENSIONAL INFORMATION AS NOTED IN DRAWINGS. CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY IF THERE IS ANY AMBIGUITY, LACK OF INFORMATION OR INCONSISTENCY. DISREGARD FOR THIS NOTE AND EXTRA COSTS INCURRED WILL NOT BE ACCEPTED.

3. LAYOUT AND MATERIALS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH LANDSCAPE SPECIFICATIONS FOR COMPLIANCE.

4. LANDSCAPE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND ENGINEERING DRAWINGS. REPORT ANY DISCREPANCIES TO THE CONSULTANT FOR REVIEW AND RESPONSE.

5. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED/ REFERENCED UNLESS NOTED OTHERWISE.

6. VERIFY ALL DIMENSIONS WITH FIELD CONDITIONS. REPORT ANY DISCREPANCIES TO THE CONSULTANT FOR REVIEW AND RESPONSE.

7. UTILITY AND LIGHTING ARE INDICATED FOR REFERENCE ONLY. REFER TO ENG. DRAWINGS FOR LOCATIONS, DETAILS, AND SPECIFICATIONS.

8. REFER TO ENGINEERING DRAWINGS FOR SUBGRADE, AND REINFORCING OF ALL PAVED SURFACES IN ROADWAYS.

9. THE CONTRACTOR SHALL VERIFY DIMENSIONS SHOWN ON DRAWINGS AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR INCONSISTENCIES PRIOR TO CONSTRUCTION.

10. PROVIDE IRRIGATION FOR ALL SOFT LANDSCAPING INCLUDING GROUNDCOVERS, SHRUBS, AND GREENROOF. COULEE RE-ESTABLISHMENT PLANTING AFTER ESTABLISHED SHALL NOT BE IRRIGATED.

11. PROVIDE ADEQUATE SUB-SURFACE DRAINAGE IN ALL PLANTED AREAS.

12. SEE SURVEY AND ARCHITECTURAL DRAWINGS FOR BUILDING PERIMETER AND ROADWAY GRADING.

13. ALL PLANT MATERIAL AND LANDSCAPE CONSTRUCTION TO CONFORM TO UBC STANDARDS.

14. ENSURE POSITIVE DRAINAGE.

15. PERIMETER ROADWAY TO BE RECONSTRUCTED FULLY IF DAMAGE.

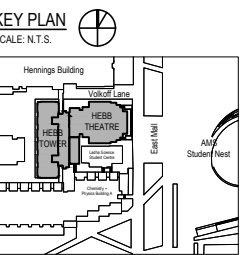
LANDSCAPE ARCHITECTURAL SYMBOLS

Section Detail Drawing No.	
Plant Type Quantity	
Detail No. Drawing No.	
Detail No. Drawing No.	
Elevation marker (For elev. view)	
Elevation marker (For plan view)	

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3.	Issued for Design Development Cost Estimate	Apr. 26, 2017
3.	Issued for Client Review	June 01, 2017
4.	Issued for DP	June 20, 2017



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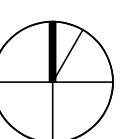
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**PFS STUDIO**  
PLANNING + URBAN DESIGN + LANDSCAPE ARCHITECTURE

## UBC Hebb Building Upgrade

University of British Columbia  
2045 East Mall

scale	date
	15 Dec 2016
project no.	status
16034	DP
drawn	checked
BL/AF/ CM	CP / CM



Landscape  
Cover Page

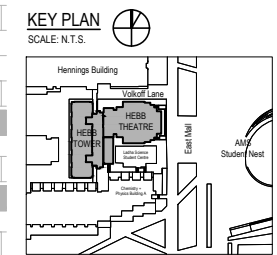
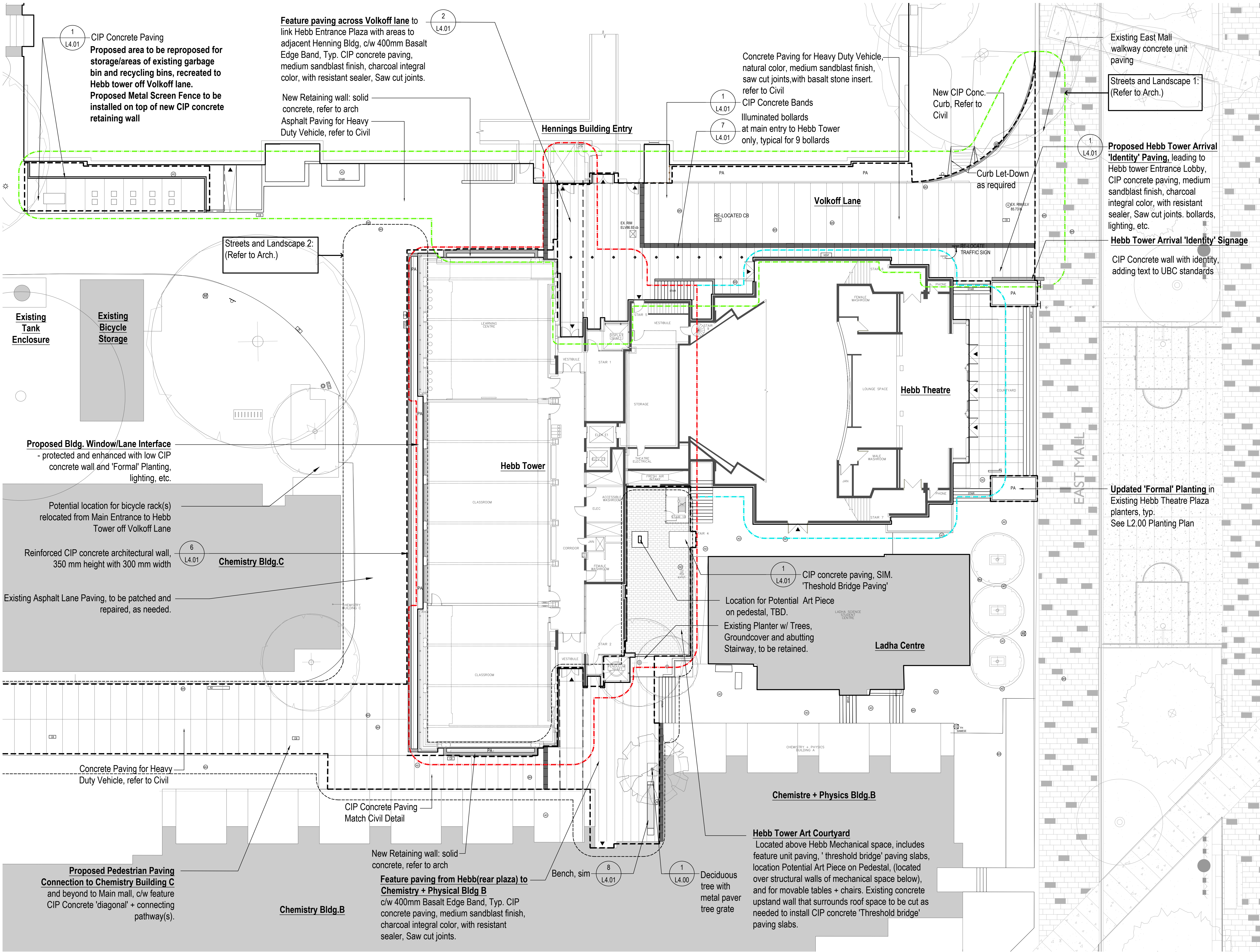
drawing number

L0.00



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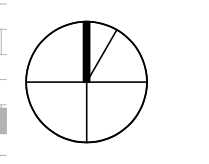
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**UBC Hebb Building Upgrade**

University of British Columbia  
 2045 East Mall

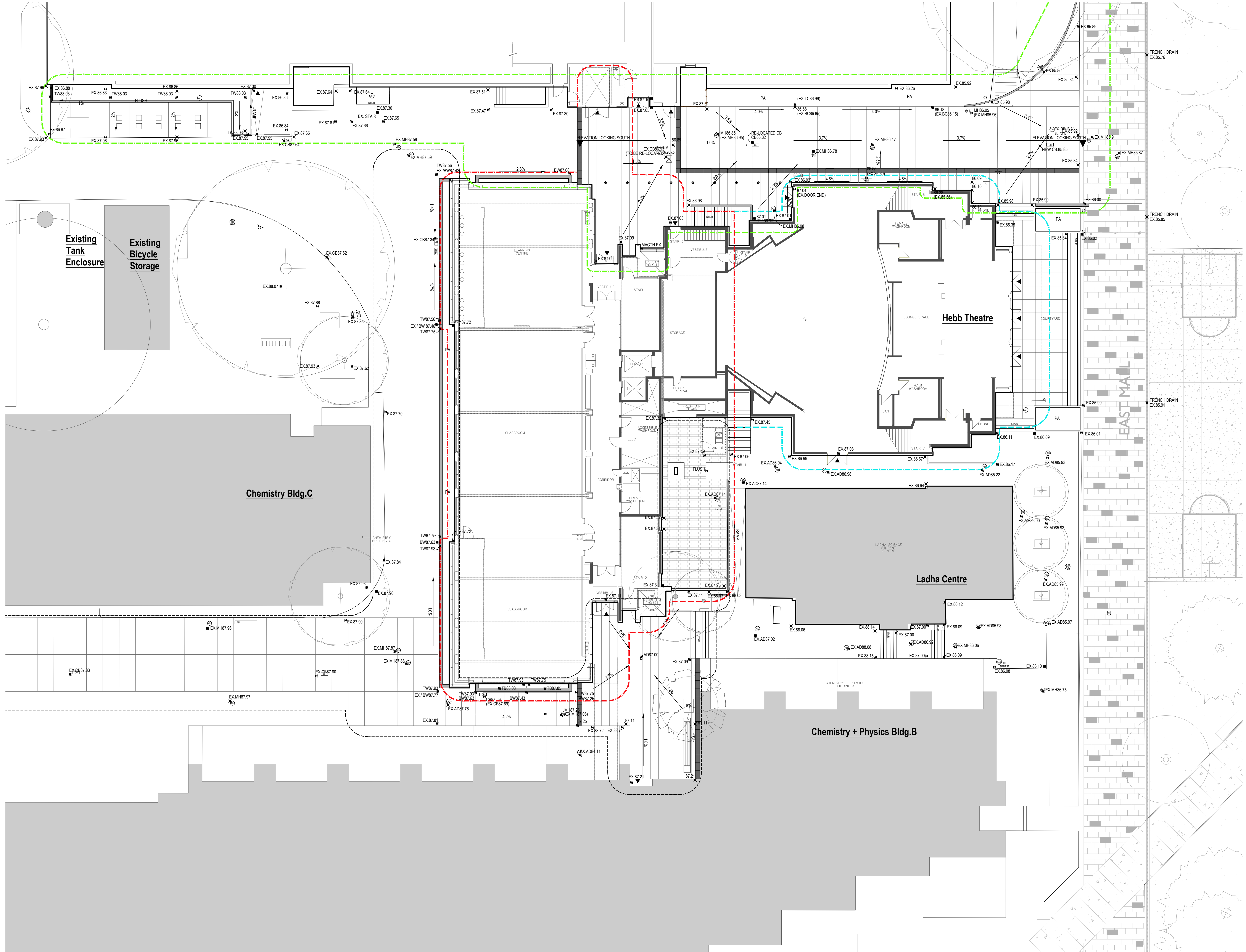
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project no.	status
16034	DP
drawn	checked
BL/AF/ CM	CP / CM



**Landscape Plan**

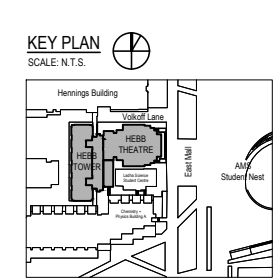
drawing number  
**L1.00**





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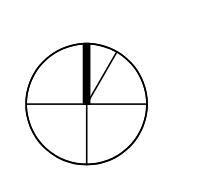
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project no.	status
16034	DP
drawn	checked
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**Landscape Grading Plan**

drawing number  
**L1.01**

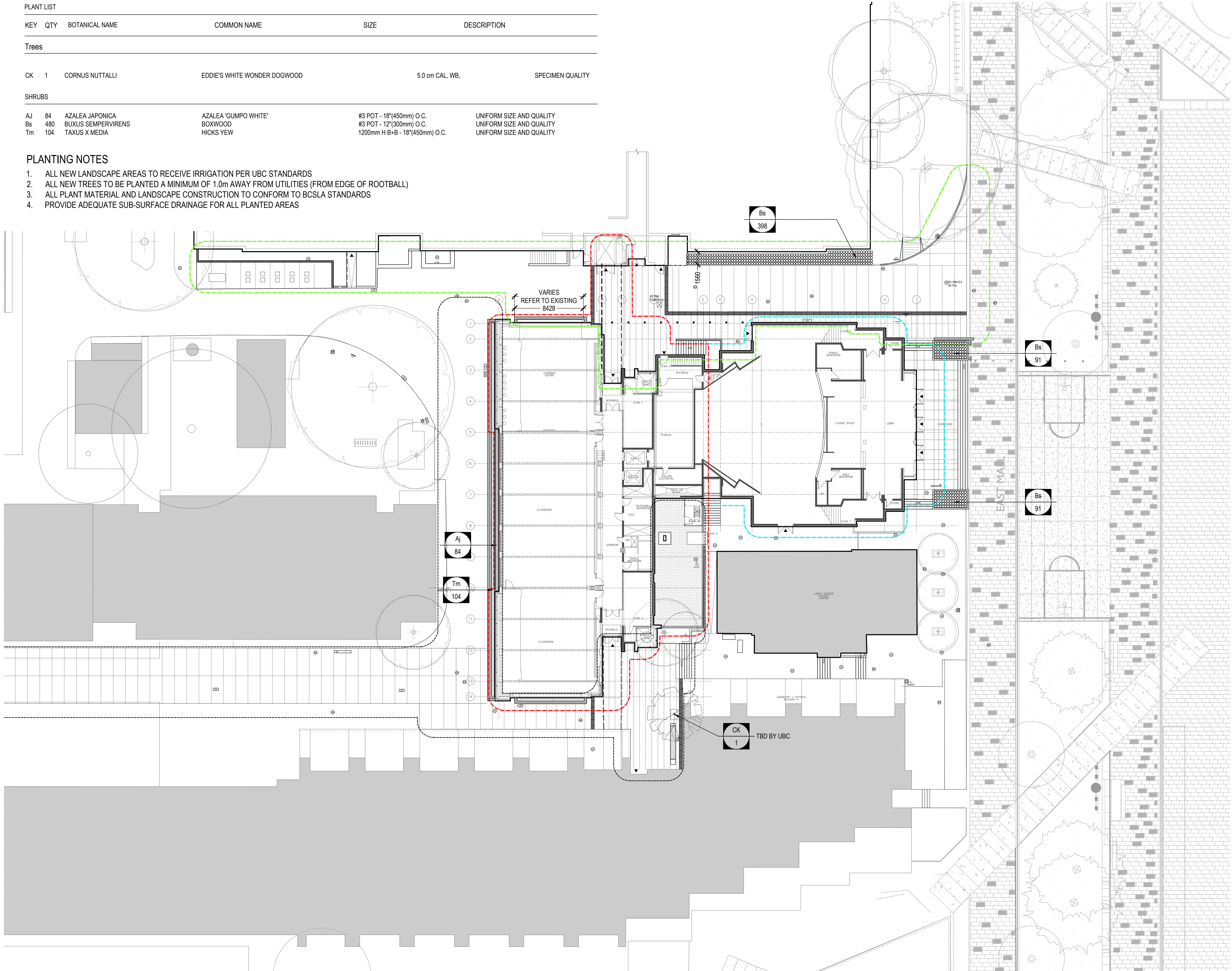


PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	DESCRIPTION
<b>Trees</b>					
CK	1	CORNUS NUTTALLI	EDDIE'S WHITE WONDER DOGWOOD	5.0 cm CAL. WB.	SPECIMEN QUALITY
<b>SHRUBS</b>					
AJ	84	AZALEA JAPONICA	AZALEA 'GUMPO WHITE'	#3 POT - 18"(450mm) O.C.	UNIFORM SIZE AND QUALITY
Bs	480	BUXUS SEMPERVIRENS	BOXWOOD	#3 POT - 12"(300mm) O.C.	UNIFORM SIZE AND QUALITY
Tm	104	TAXUS X MEDIA	HICKS YEW	1200mm H B+B - 18"(450mm) O.C.	UNIFORM SIZE AND QUALITY

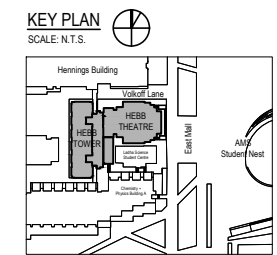
PLANTING NOTES

1. ALL NEW LANDSCAPE AREAS TO RECEIVE IRRIGATION PER UBC STANDARDS
2. ALL NEW TREES TO BE PLANTED A MINIMUM OF 1.0m AWAY FROM UTILITIES (FROM EDGE OF ROOTBALL)
3. ALL PLANT MATERIAL AND LANDSCAPE CONSTRUCTION TO CONFORM TO BCSLA STANDARDS
4. PROVIDE ADEQUATE SUB-SURFACE DRAINAGE FOR ALL PLANTED AREAS



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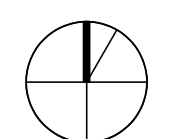


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**UBC Hebb Building Upgrade**  
 University of British Columbia  
 2045 East Mall

scale	date
	15 Dec 2016
project no.	status
16034	DP
drawn	checked
BL/AF/ CM	CP / CM



**Landscape Planting Plan**  
 drawing number  
**L2.00**



**LEGEND**

RECESSED STRIP LIGHT  
- under woodtop benches



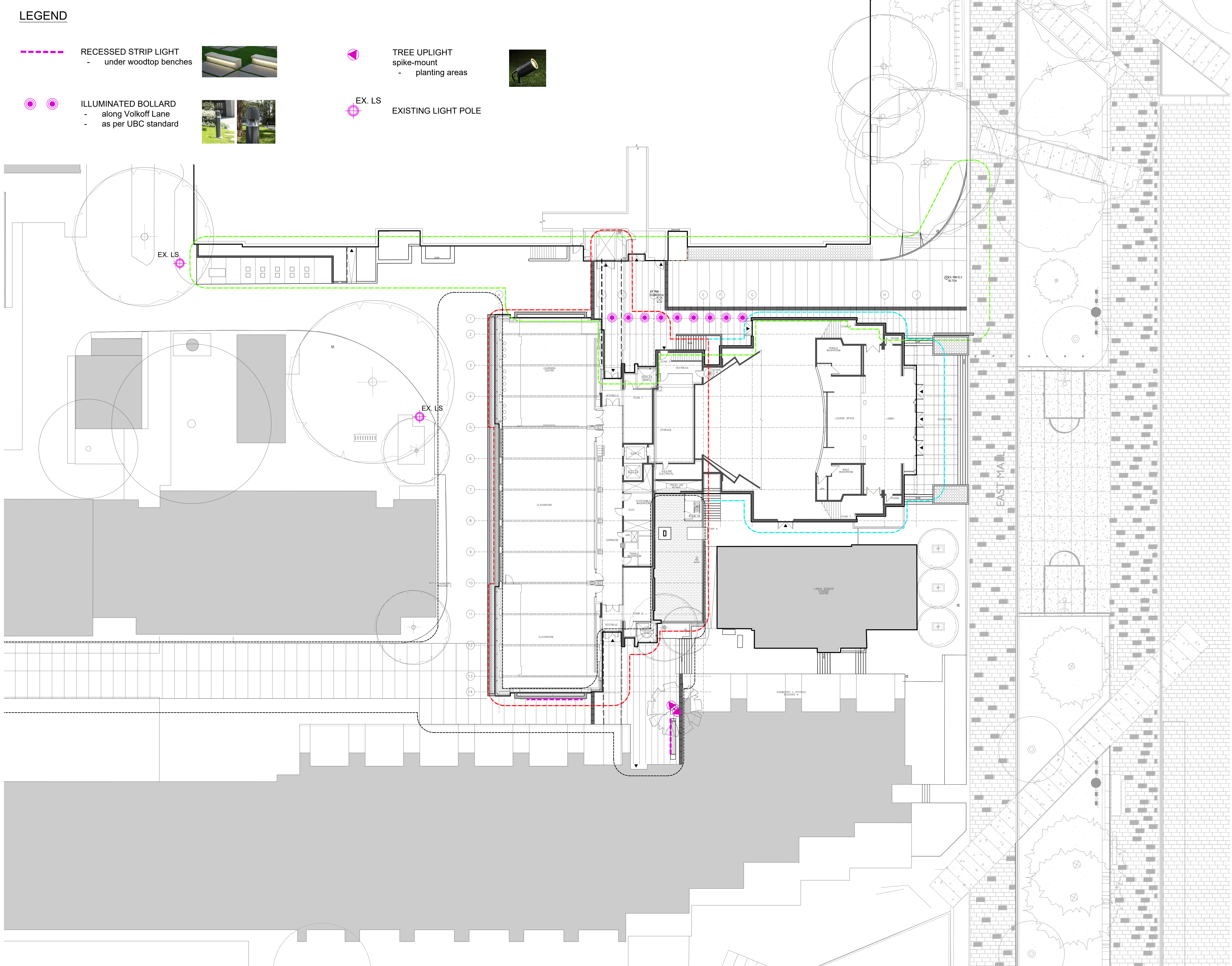
TREE UPLIGHT  
spike-mount  
- planting areas



ILLUMINATED BOLLARD  
- along Volkoff Lane  
- as per UBC standard

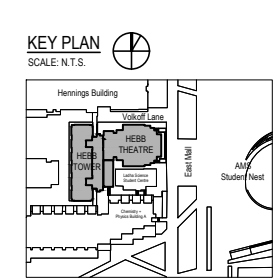


EX. LS  
EXISTING LIGHT POLE



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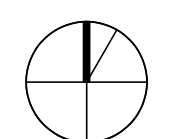
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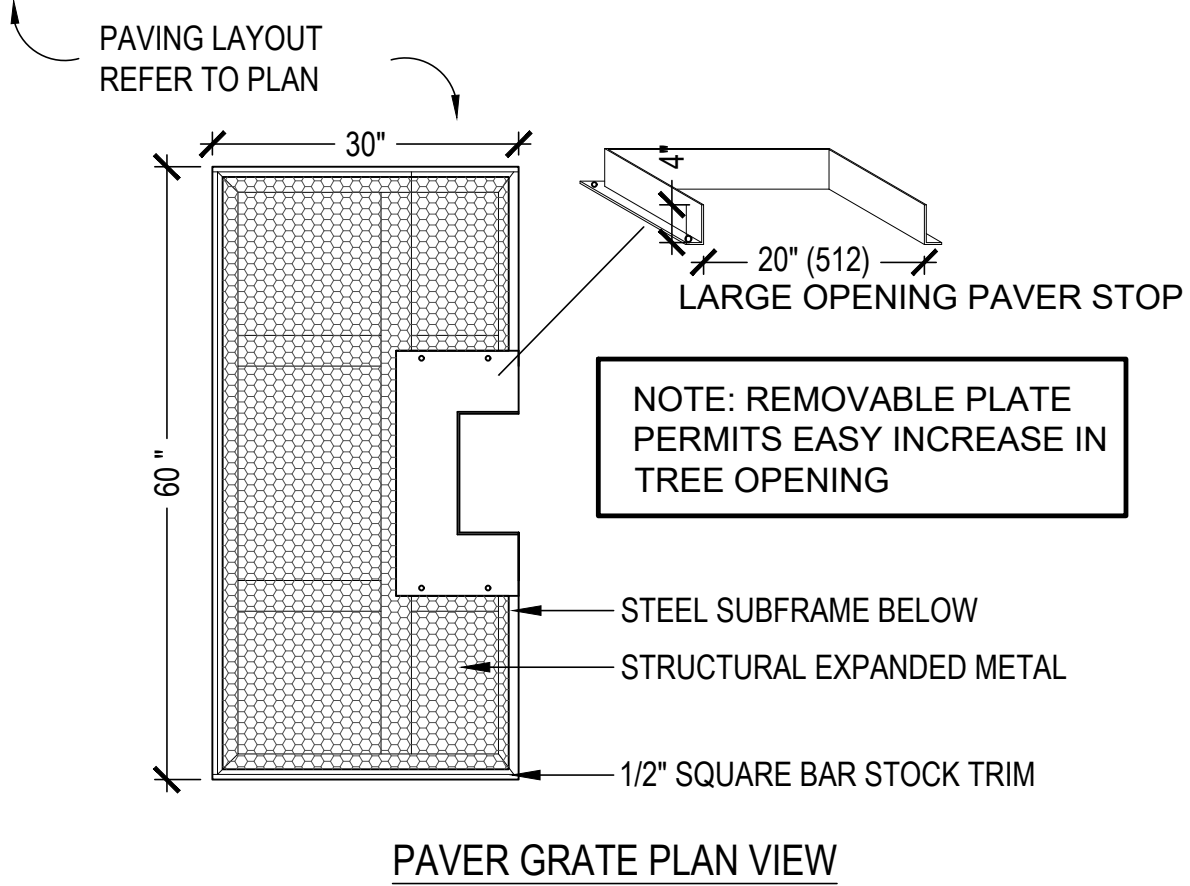
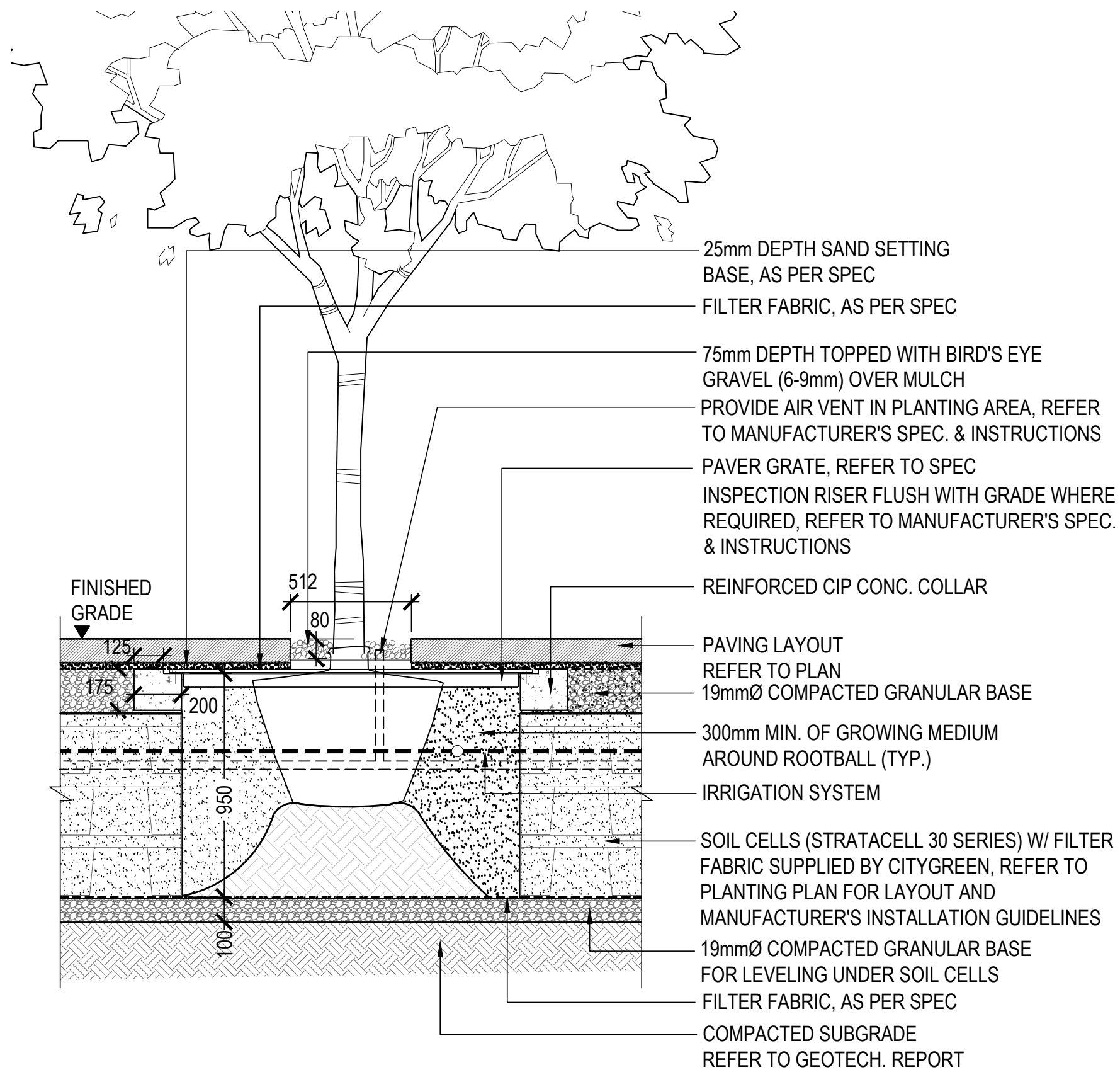
scale	date
	15 Dec 2016
project no.	status
16034	DP
drawn	checked
BL/AF/ CM	CP / CM



**Landscape Lighting Plan**

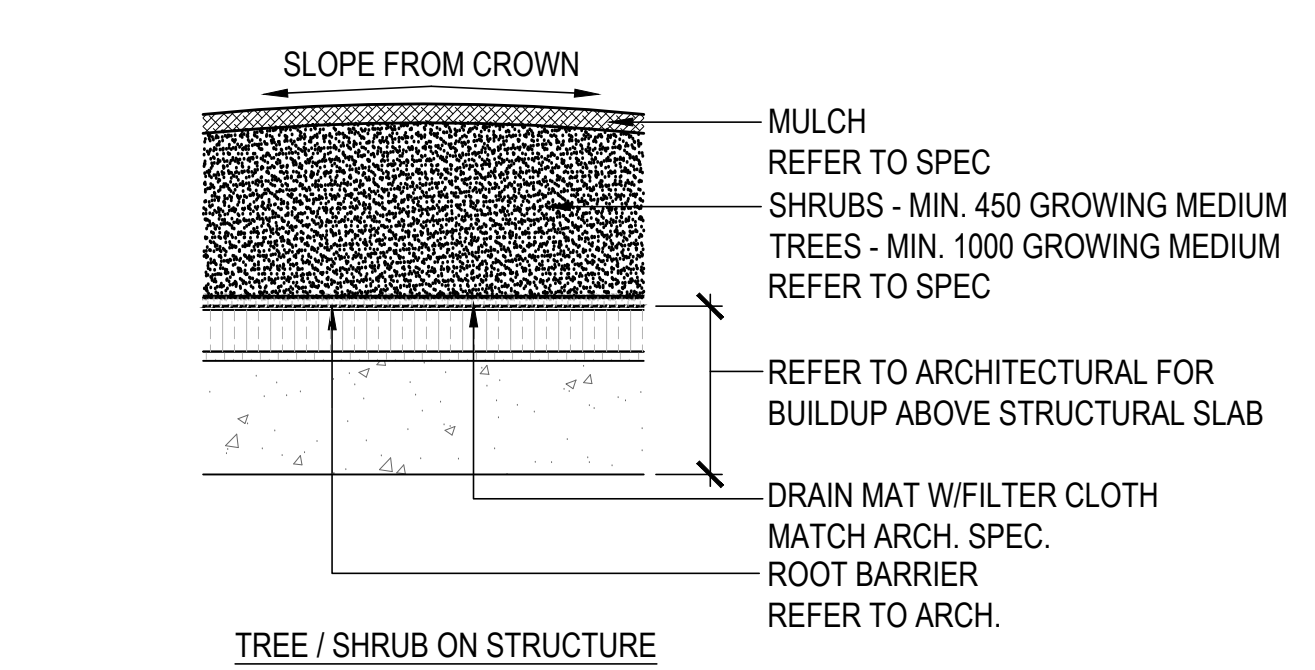
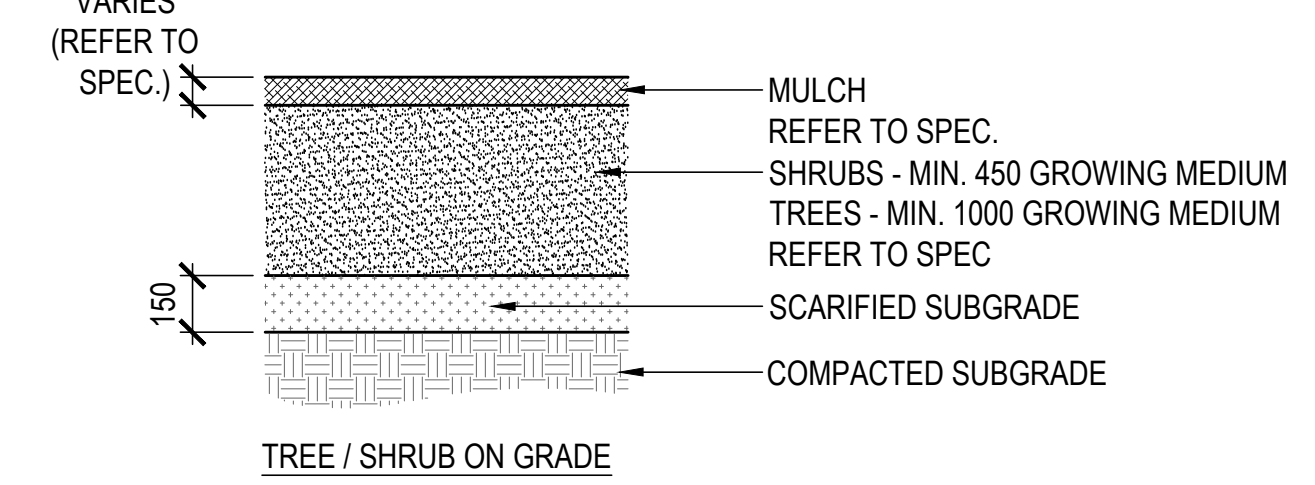
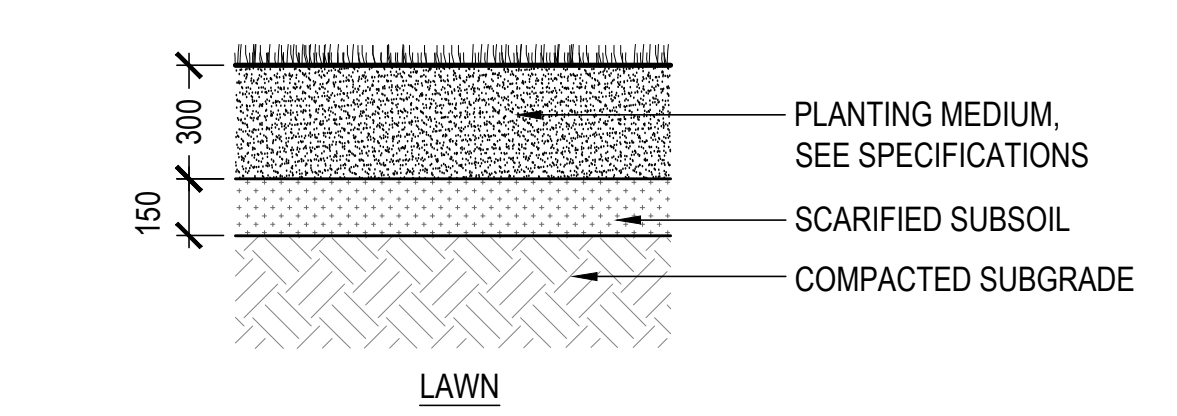
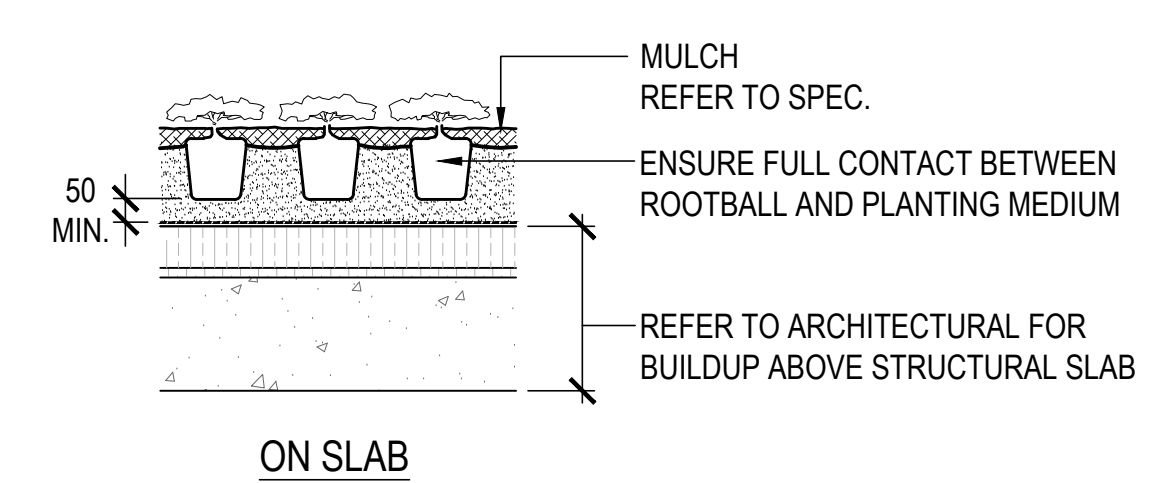
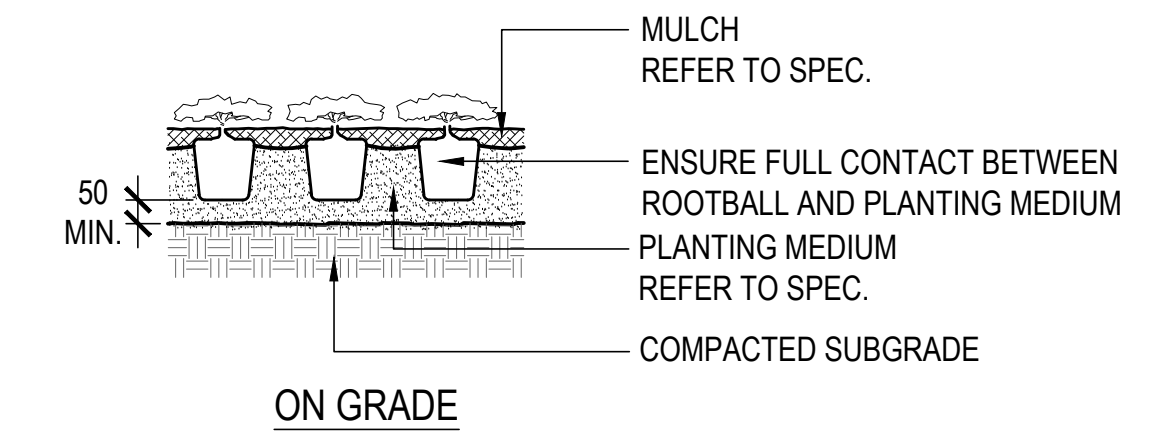
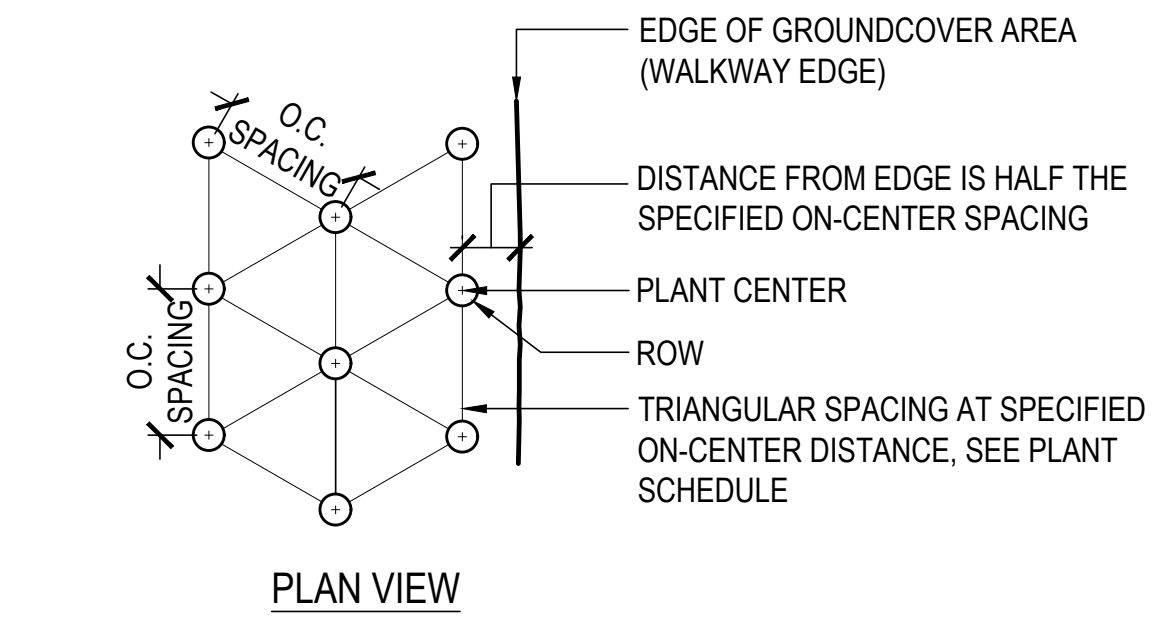
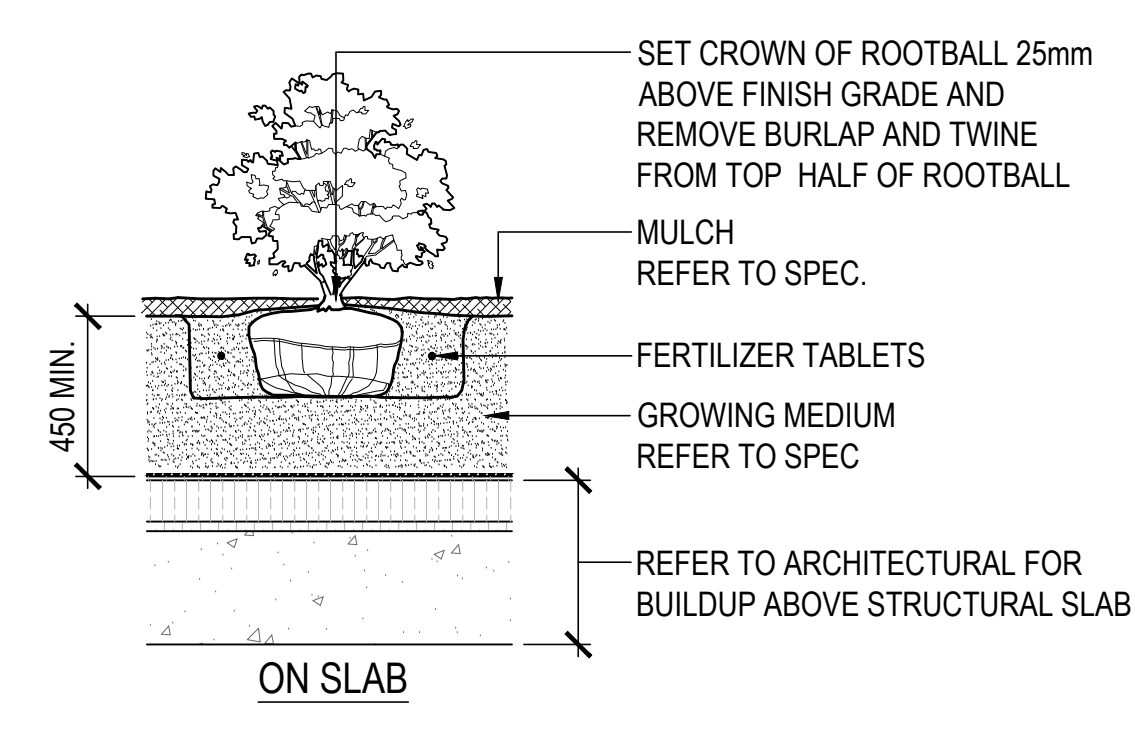
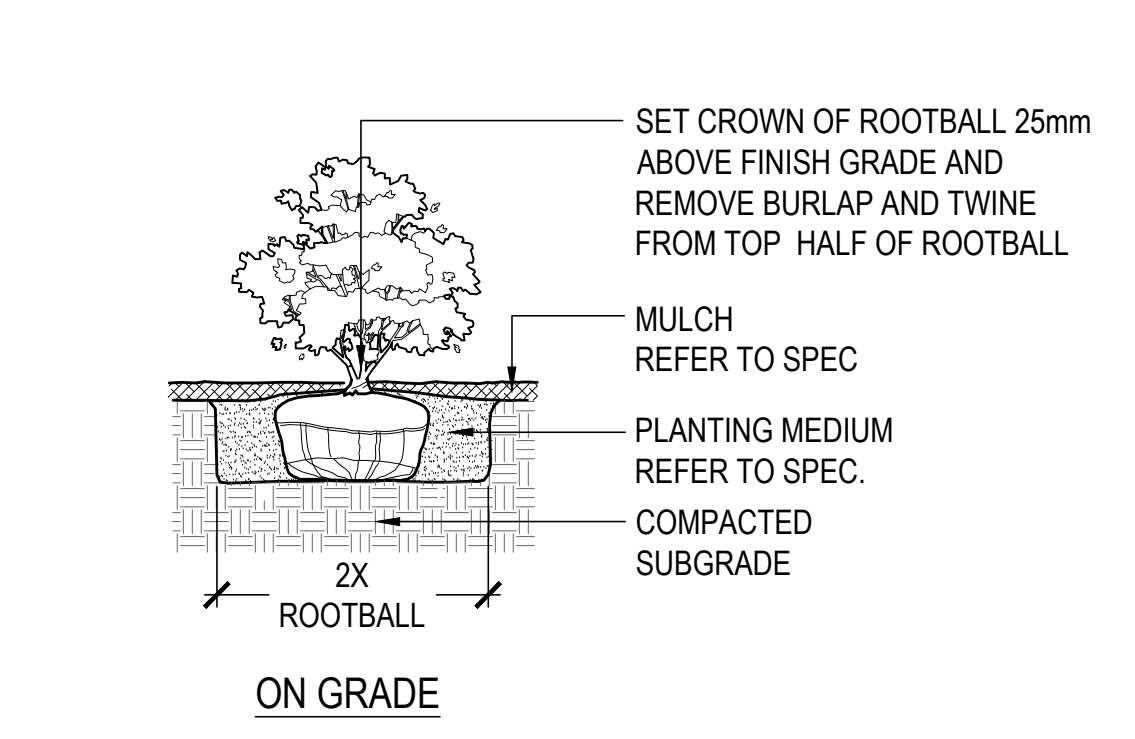
drawing number  
**L3.00**





SAMPLE PHOTOS OF PAVER GRATE

**1 Deciduous Tree with Metal Paver Tree Grate**  
SCALE: 1:20



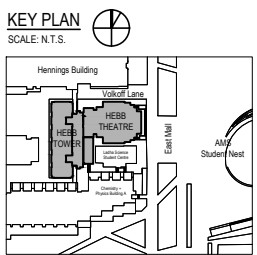
**3 Shrub Planting**  
SCALE: 1:20

**4 Groundcover Planting**  
SCALE: 1:20

**5 Soil Profiles**  
SCALE: 1:20

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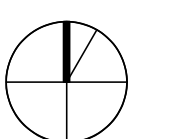
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**UBC Hebb Building Upgrade**

University of British Columbia  
2045 East Mall

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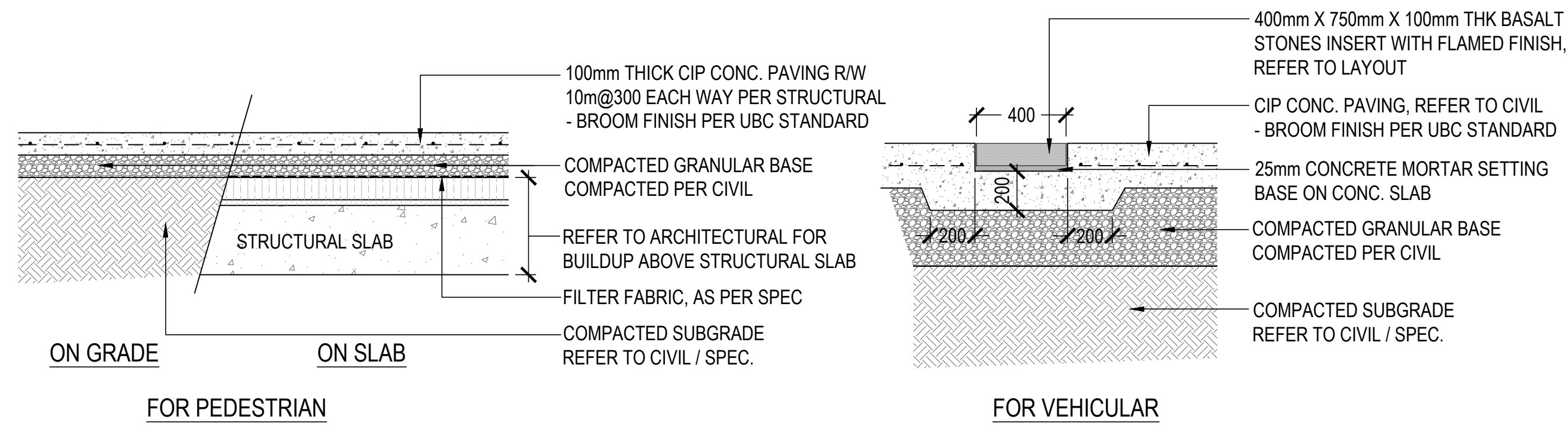


**Landscape Details**

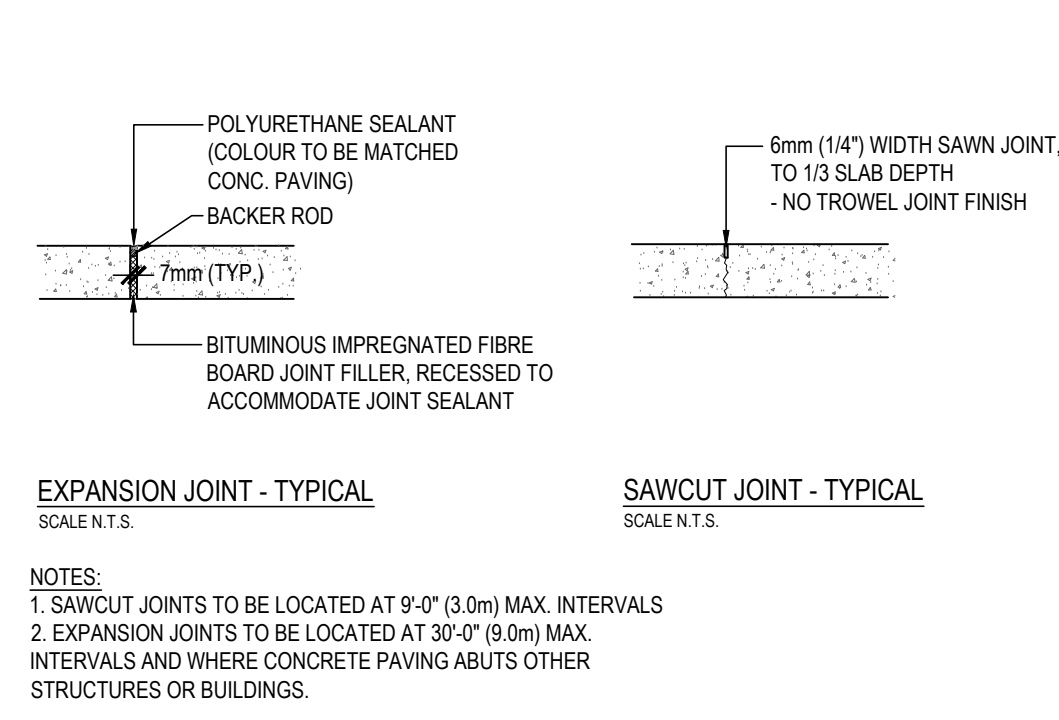
drawing number

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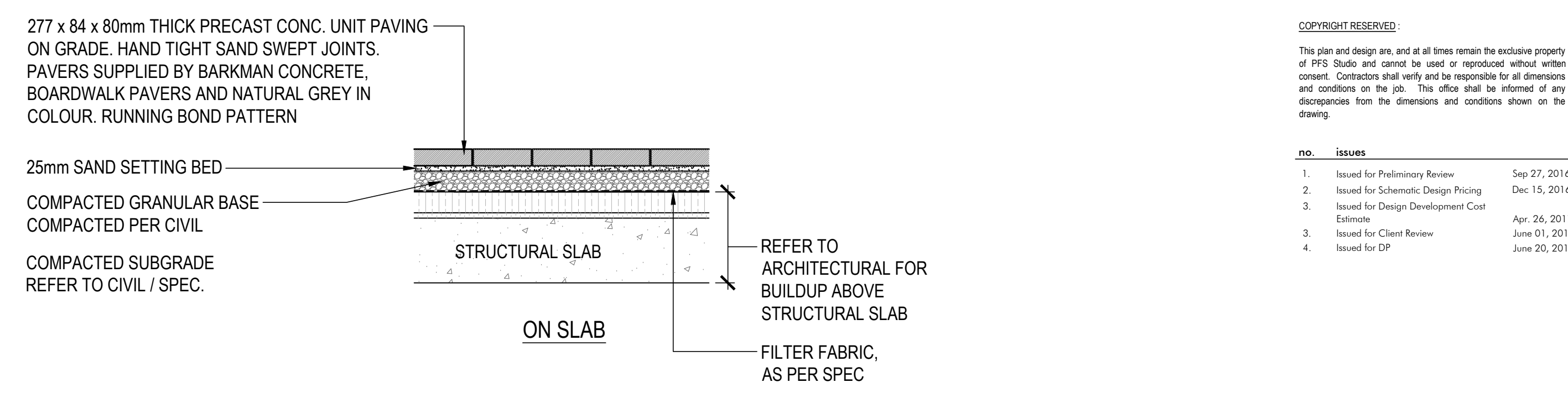




1 CIP Concrete Paving  
SCALE: 1:20

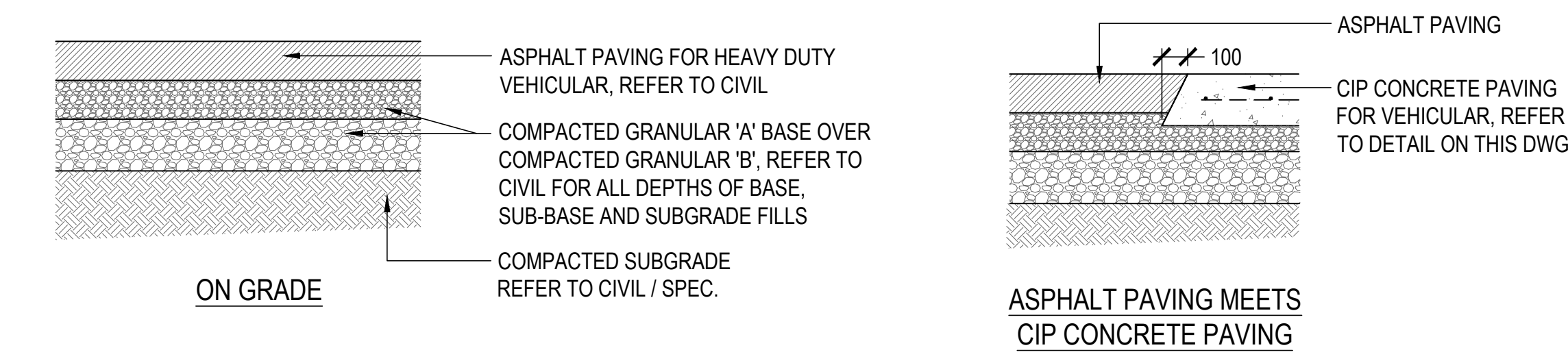


2 Precast Concrete Unit Paving  
SCALE: 1:20

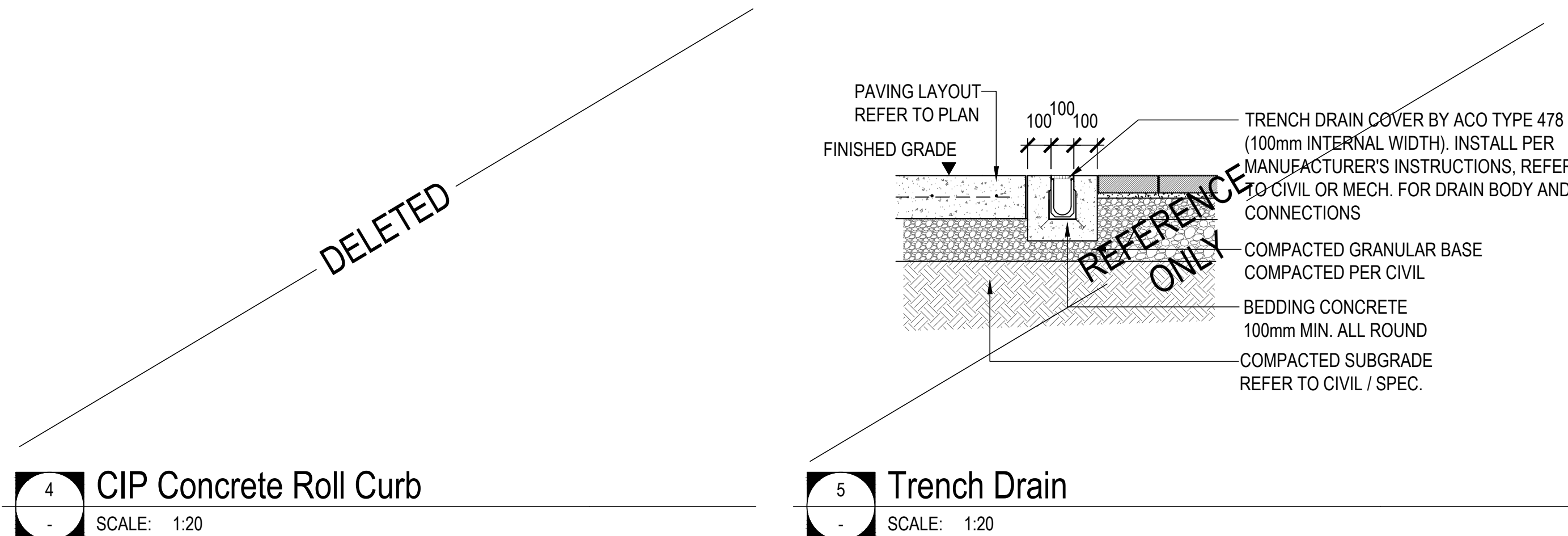


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no.	issues	date
1.	Issued for Preliminary Review	Sep 27, 2016
2.	Issued for Schematic Design Pricing	Dec 15, 2016
3.	Issued for Design Development Cost Estimate	Apr. 26, 2017
4.	Issued for Client Review	June 01, 2017
5.	Issued for DP	June 20, 2017

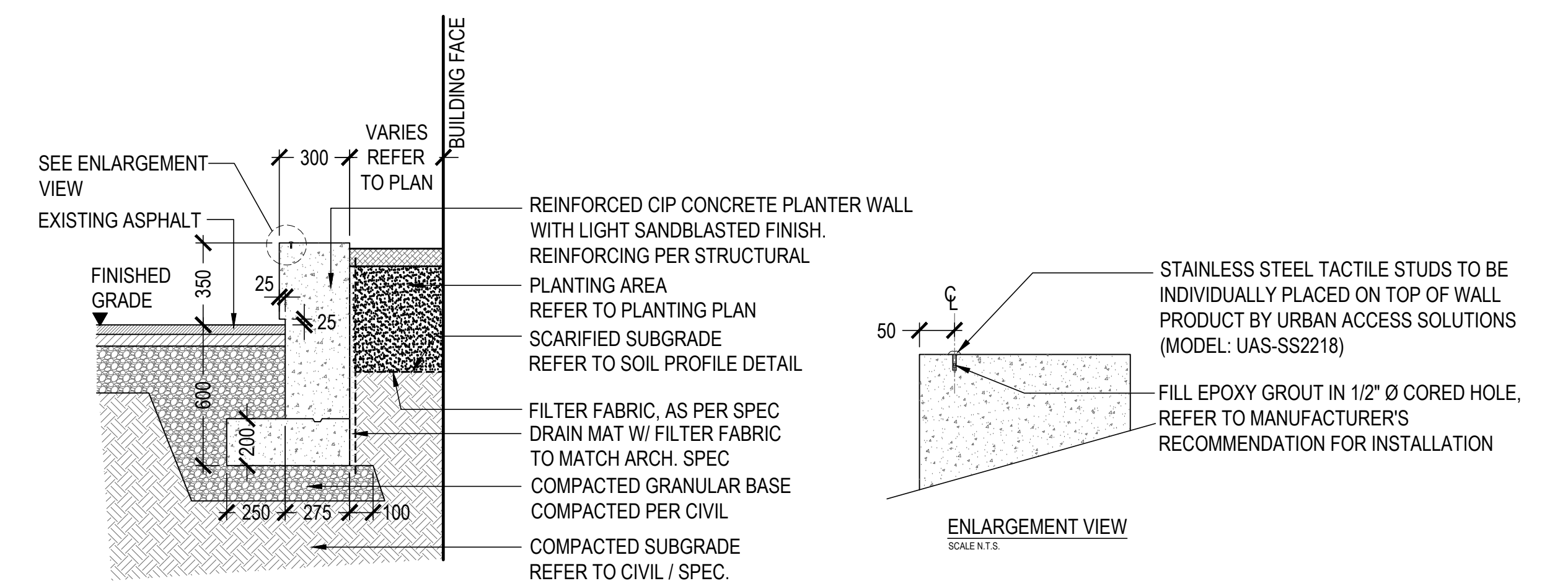


3 Asphalt Paving (FOR VEHICULAR)  
SCALE: 1:20

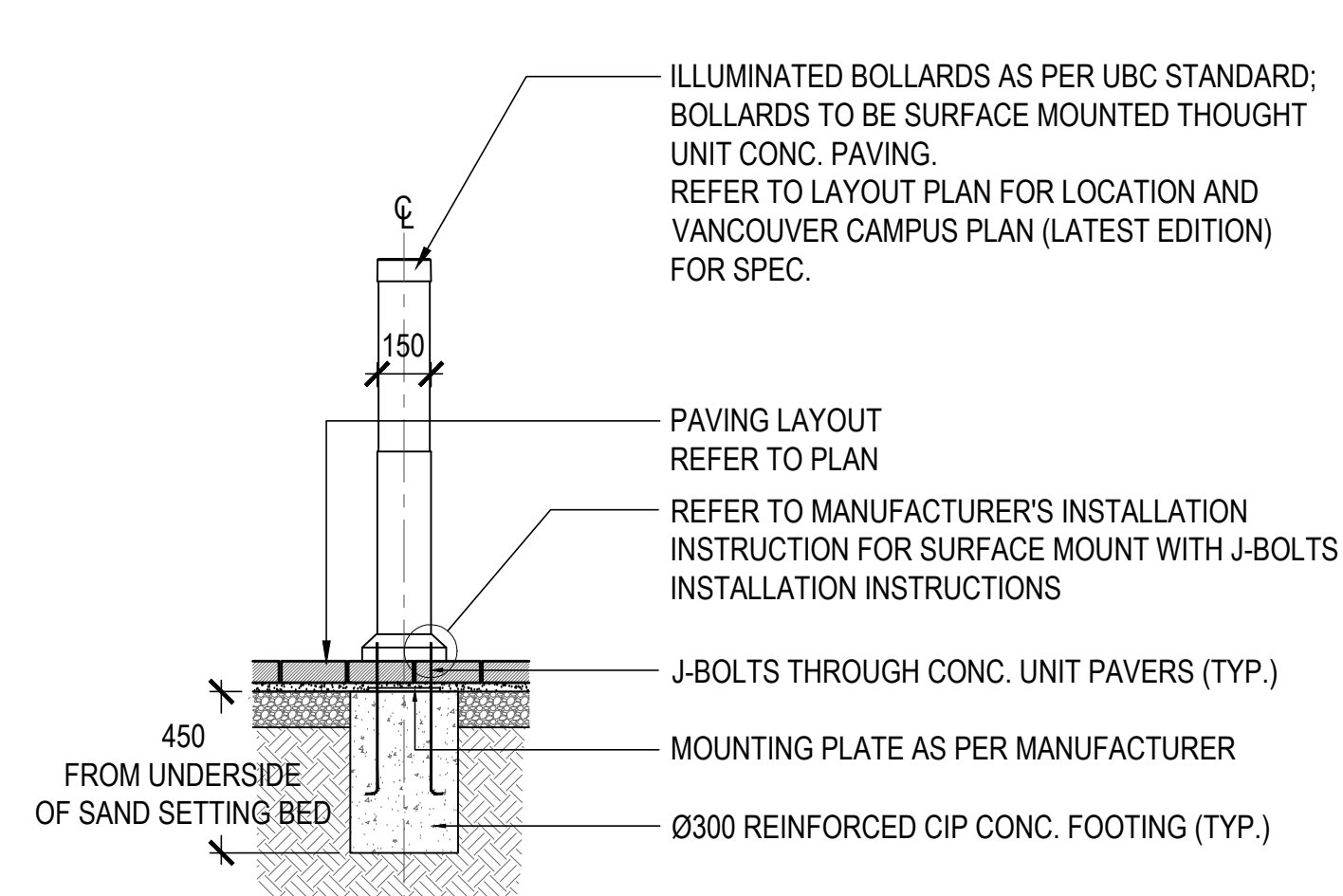


4 CIP Concrete Roll Curb  
SCALE: 1:20

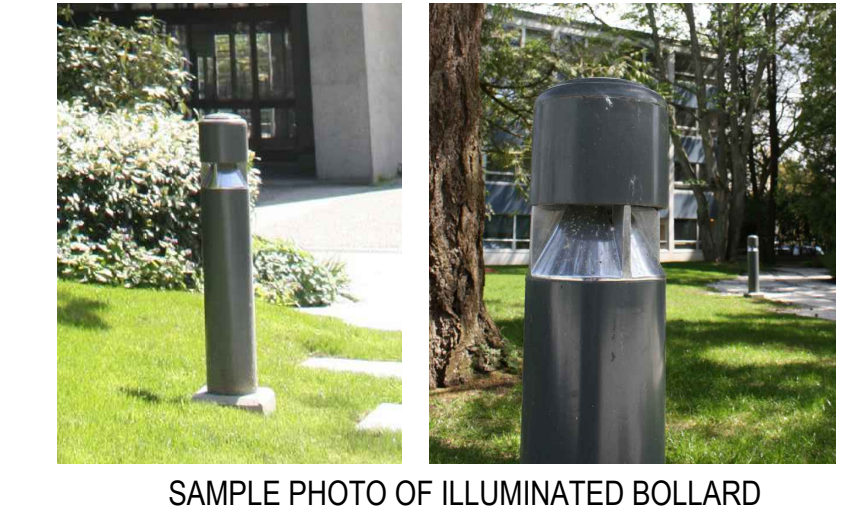
5 Trench Drain  
SCALE: 1:20



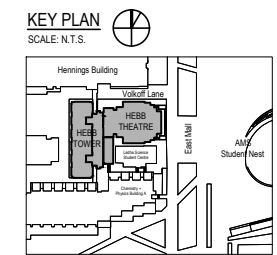
6 Reinforced CIP Concrete Architectural Wall  
SCALE: 1:20



7 Bollards (Illuminated)  
SCALE: 1:20

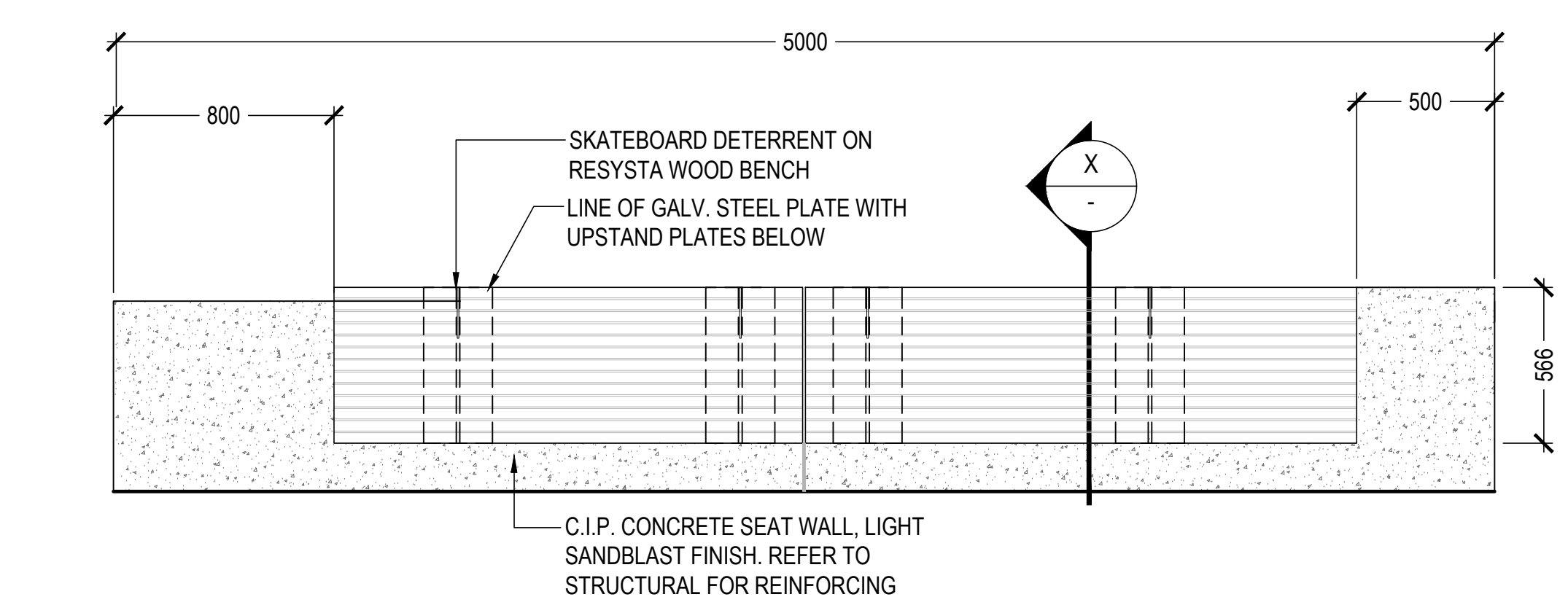


- NOTES:**
1. PROVIDE SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO FABRICATION.
  2. REFER TO LAYOUT PLANS FOR LOCATIONS
  3. REFER TO ELEC. FOR CONDUIT / DRIVER LOCATIONS

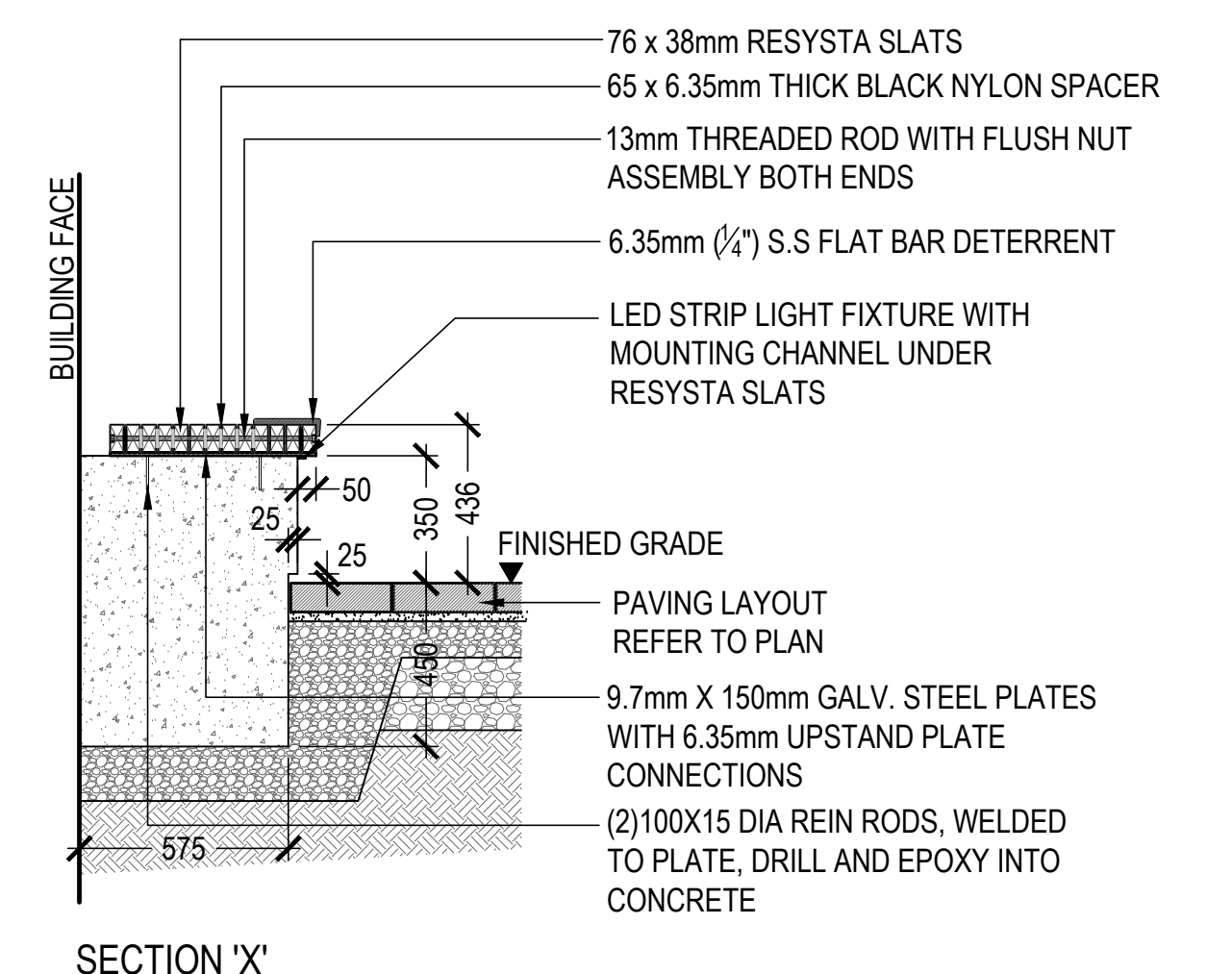


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8 Concrete Plinth with Resysta Bench on top, similar  
SCALE: 1:20

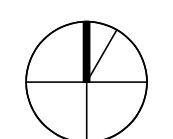


- NOTES:**
1. PROVIDE ENGINEERED SHOP DRAWINGS FOR ALL BENCH ASSEMBLIES.
  2. ALL WOOD TO BE RESYSTA, REFER TO LANDSCAPE SPECS FOR WOOD MATERIAL AND FINISHES.
  3. ALL STEEL TO BE GALVANIZED UNLESS OTHERWISE INDICATED.
  4. REFER TO STRUCTURAL FOR REINFORCEMENT DETAILS AND FOOTINGS.
  5. REFER TO STRUCTURAL FOR WELDING SCHEDULE & CONNECTION MATERIAL SPECIFICATION.
  6. REFER TO LAYOUT PLANS FOR BENCH LOCATIONS.
  7. PROVIDE ENGINEERED SHOP DRAWINGS FOR BENCH SLATTING & ASSEMBLIES PRIOR TO CONSTRUCTION.

**UBC Hebb Building Upgrade**

University of British Columbia  
2045 East Mall

scale	date
	15 Dec 2016
project no.	status
16034	DP
drawn	checked
BL/AF/ CM	CP / CM



**Landscape Details**

drawing number

L4.01



**LEGEND**

EX. WATER		ABND. WATER	
EX. WATER - IRRIGATION		ABND. SANITARY SEWER	
EX. SANITARY SEWER		ABND. STORM SEWER	
EX. STORM SEWER		ABND. GAS	
EX. GAS		ABND. STEAM	
EX. STEAM			
EX. HYDRO			
EX. TEL / COMM			
DISTRICT HOT WATER ALIGNMENT			

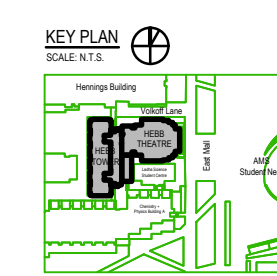
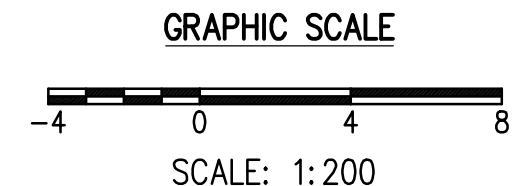
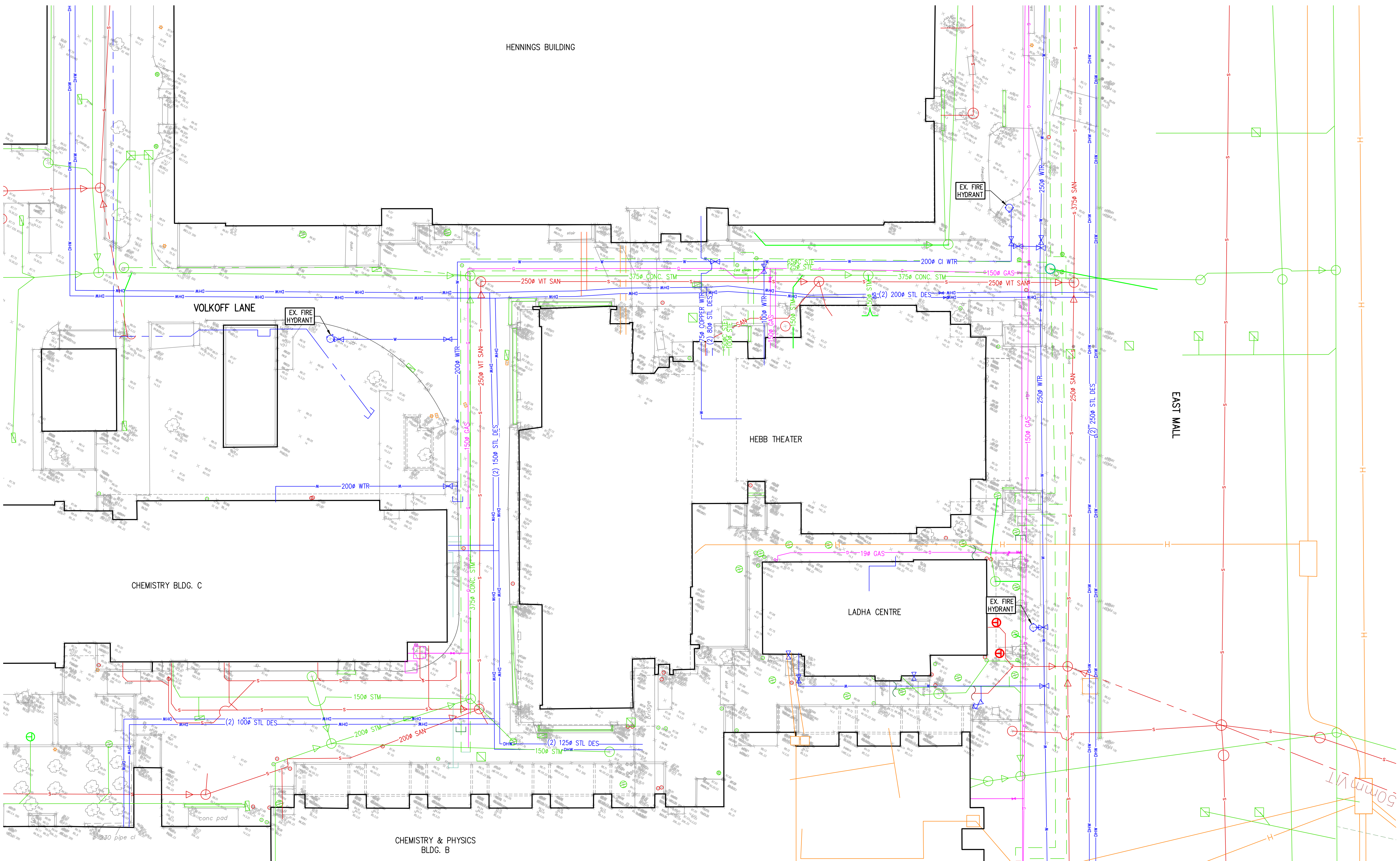
**GENERAL NOTES:**

1. CALL BC ONE-CALL 24 HOURS PRIOR TO CONSTRUCTION.
2. TOPOGRAPHIC SURVEY FOR THIS SITE PROVIDED BY MURRAY AND ASSOCIATED LAND SURVEYORS.
3. UTILITY TRENCH WIDTH VARIES WITH DIAMETER AND DEPTH OF UTILITY PIPE TO BE INSTALLED. MINIMUM WIDTH TYPICALLY 600mm.
4. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER CIVIL AND OTHER DISCIPLINE'S DRAWINGS.

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no.	issues
1	DP SUBMISSION

JUNE 20, 2017



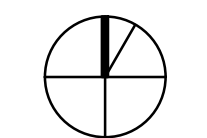
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**UBC Hebb Building Upgrade**  
 University of British Columbia  
 2045 East Mall

scale	date
project no.	status
drawn	checked
DB	BC



**UTILITIES EXISTING CONDITIONS**  
 drawing number

INFORMATION ON EXISTING UTILITIES MAY NOT BE COMPLETE OR ACCURATE. PRIOR TO CONSTRUCTION CONTRACTOR SHALL EXPOSE LOCATIONS OF ALL EXISTING UTILITIES AND ADVISE THE ENGINEER OF POTENTIAL CONFLICTS.



**LEGEND**

EX. WATER	— W —	ABND. WATER	- - - W - - -
EX. WATER - IRRIGATION	— W —	ABND. SANITARY SEWER	- - - S - - -
EX. SANITARY SEWER	— S —	ABND. STORM SEWER	- - - S - - -
EX. STORM SEWER	— D —	ABND. GAS	- - - G - - -
EX. GAS	— G —	ABND. STEAM	- - - S - - -
EX. STEAM	— S —	PROP. WATER	— W —
EX. HYDRO	— H —		
EX. TEL / COMM	— T —		
DISTRICT HOT WATER ALIGNMENT	— DHW —		

**GENERAL NOTES:**

1. CALL BC ONE-CALL 24 HOURS PRIOR TO CONSTRUCTION.
2. TOPOGRAPHIC SURVEY FOR THIS SITE PROVIDED BY MURRAY AND ASSOCIATED LAND SURVEYORS.
3. UTILITY TRENCH WIDTH VARIES WITH DIAMETER AND DEPTH OF UTILITY PIPE TO BE INSTALLED. MINIMUM WIDTH TYPICALLY 600mm.
4. THESE DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER CIVIL AND OTHER DISCIPLINE'S DRAWINGS.

**TESTING :**

1. ALL TESTING TO BE PERFORMED BY A CSA OR COIL (CANADIAN CERTIFIED TESTING LABORATORIES) CERTIFIED LABORATORY.
2. FREQUENCY OF DENSITY TESTS FOR EXCAVATING, TRENCHING AND BACKFILLING SHALL BE ONE TEST PER 50 LINEAL METRES OR TRENCH PER METRE OF DEPTH. MATERIAL TO BE COMPACTED IN 300mm LIFTS.
3. FREQUENCY OF DENSITY TESTS FOR ROADWAY EXCAVATION, EMBANKMENT (SUB-GRADE FILL) AND COMPACTION SHALL BE ONE TEST PER 250m<sup>2</sup> PER 300mm LIFT.
4. FREQUENCY OF DENSITY TESTS FOR GRANULAR BASE AND SUB-BASE SHALL BE ONE TEST PER 30 LINEAL METRES OF LANE WIDTH STAGGERED EACH SIDE OF CENTRELINE PER 150mm LIFT OR OF SPECIFIED THICKNESS.
5. FREQUENCY OF DENSITY TESTS FOR SIDEWALK BASE SHALL BE ONE TEST PER 30 LINEAL METRES WITHIN SIDEWALK AND DRIVEWAY AREA.

1. FREQUENCY OF DENSITY TESTS FOR CURB BASE SHALL BE ONE TEST PER 100 LINEAL METRES.
2. FREQUENCY OF MARSHALL TESTS FOR HOT-MIX ASPHALT CONCRETE PAVING SHALL BE ONE TEST PER 500 TONNES OF MIX PLACED OR ONE TEST FOR EACH TYPE OF ASPHALT MIX, MINIMUM ONE PER DAY.
3. FOR PAVING, CORE LOCATIONS WILL BE SELECTED FOR EACH PASS OF THE PAVING MACHINE AS FOLLOWS:
  - 3.1. ACROSS THE WIDTH, CORE LOCATIONS WILL BE SELECTED RANDOMLY FROM ONE-SIXTH INCREMENTS.
  - 3.2. ALONG THE LENGTH, CORE LOCATIONS WILL HAVE A RANDOMLY SELECTED START WITH CORES AT A SPACING OF APPROXIMATELY, BUT NOT TO EXCEED 30 METRES.
  - 3.3. FOR OTHER PAVING OPERATIONS, A MINIMUM OF ONE CORE FOR EVERY 250 SQUARE METRES OF ASPHALT MIX PLACED.
4. FREQUENCY OF PLASTIC CONCRETE TESTS FOR SIDEWALK SHALL BE ONE TEST PER 150 LINEAL METRES OR A MINIMUM OF ONE PER DAY.
5. FREQUENCY OF PLASTIC CONCRETE TESTS FOR CURB AND GUTTER SHALL BE ONE TEST PER 300 LINEAL METRES OF A MINIMUM OF ONE PER DAY.

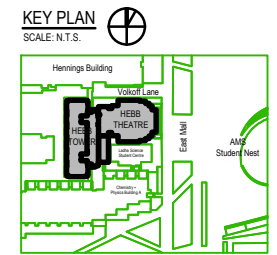
1. PRESSURE AND BACTERIOLOGICAL TESTING TO BE DONE BY CONTRACTOR PRIOR TO TIE-IN AND ACCEPTANCE BY UBC UTILITIES. ASSUMED TEST PRESSURE OF 1380 kPa (200 psi). THE CONTRACTOR SHALL TEST ALL WATERMANS: PRESSURE TEST TO B.C. BUILDING CODE (2012) AND SHALL CHLORINATE AND FLUSH TO MINISTRY OF HEALTH AND AWWA STANDARDS. ALL TESTING IS TO BE WITNESSED BY THE ENGINEER AND THE UBC INSPECTOR. TESTING TO BE APPROVED BY UBC PRIOR TO TIE-IN TO MUNICIPAL WATER SYSTEM. ALL STORM AND SANITARY SYSTEMS TO BE TESTED PER SECTION 3.6 OF THE B.C. PLUMBING CODE. THE ENGINEER IS TO BE NOTIFIED 48 HOURS PRIOR TO TESTING.
2. STORM SEWERS SHALL BE VIDEO INSPECTED PER MMCD SPECIFICATIONS SECTION 02731.
3. SANITARY SEWERS SHALL BE PRESSURE TESTED AND VIDEO INSPECTED PER MMCD SPECIFICATIONS.
4. EXISTING SANITARY AND STORM SERVICE STUBS ARE TO BE CCTV INSPECTED AFTER SHORING. SUBMIT THE CCTV INSPECTION REPORTS AND VIDEOS TO UTILITIES TO ENSURE NO CONSTRUCTION DAMAGE ON EXISTING SERVICE STUBS.
5. ALL TESTING TO BE DONE AND APPROVED BEFORE BACKFILLING PIPE.

**WATER NOTES :**

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH MMCD AND UBC SPECIFICATIONS.
2. WATERMAIN TO HAVE MIN. 1.0m COVER.
3. PIPE BEDDING SHALL BE GRANULAR PIPE BEDDING AND SURROUND MATERIAL CONFORMING TO MMCD CLAUSE 2.7, SECTION 02226.
4. PIPE BACKFILL SHALL BE 100mm PIT RUN GRAVEL MATERIAL CONFORMING TO MMCD CLAUSE 2.3, SECTION 02226.
5. ALL PIPE TO BE CLASS 50 DUCTILE IRON MANUFACTURED TO AWWA C151; CEMENT MORTAR LINED TO AWWA C104 AND COATED 1 MIL THICK ASPHALT.
6. PRESSURE AND BACTERIOLOGICAL TESTING TO BE DONE BY CONTRACTOR PRIOR TO TIE-IN AND ACCEPTANCE BY UBC UTILITIES. ASSUMED TEST PRESSURE OF 1380 kPa (200 psi).
7. WATER MAIN OR SERVICE PIPE WALLS TO HAVE WRAPPED JOINTS PER LOCAL & MUNICIPAL HEALTH STANDARDS IF CLOSER THAN 0.5m VERTICAL OR 3.0m HORIZONTAL TO SANITARY OR STORM MAIN PIPE WALLS.
8. VALVE, VALVE BOXES, COMPONENTS & HYDRANTS TO BE PER UBC TECHNICAL GUIDELINES SECTION 02660, CLAUSE 2.7 AND 2.8. CIRCULAR VALVE BOXES SHALL BE NELSON TYPE.
9. ALL WATER VALVE KNUCKLES TO BE RAISED TO 0.6m BELOW FINAL GRADE.
10. ALL WATER MAIN JOINTS TO BE RESTRAINED.
11. ALL WATER MAIN FITTINGS TO BE INSTALLED WITH THRUST BLOCKS PER MMCD.
12. ALL TESTING TO BE DONE AND APPROVED BEFORE BACKFILLING PIPE.
13. WHERE CONTROLLED DENSITY FILL (CDF) OR CONCRETE IS USED, 6 MIL POLY BARRIER TO BE PLACED BETWEEN CDF/CONCRETE AND WATER MAIN/FITTINGS.

**STORM & SANITARY SEWER NOTES :**

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT UBC AND MMCD SPECIFICATIONS.
2. PIPE BEDDING SHALL BE GRANULAR PIPE BEDDING AND SURROUND MATERIAL CONFORMING TO MMCD CLAUSE 2.7, SECTION 02226.
3. PIPE BACKFILL SHALL BE 100mm PIT RUN GRAVEL MATERIAL CONFORMING TO MMCD CLAUSE 2.3, SECTION 02226.
4. ALL PIPES UP TO AND INCLUDING 525mm $\phi$  PVC PIPE TO UBC SPECIFICATIONS AS FOLLOWS (UNLESS OTHERWISE NOTED) :
  - 150mm $\phi$  & SMALLER SDR28
  - 200mm $\phi$  TO 525mm $\phi$  SDR35 TO ASTM 03034 SPECS.
5. ALL PIPES SHALL HAVE CLOSED JOINTS
6. PIPE TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS FOR PIPE DEPTH AND SLOPE PER SOIL CONDITIONS.
7. ALL SANITARY AND STORM SEWER MANHOLES TO BE 1050mm $\phi$  WITH MARKINGS PER UBC REQUIREMENTS UNLESS OTHERWISE NOTED.
8. ALL CATCH BASIN LEADS SHALL HAVE A MINIMUM OF 1.0% GRADE.
9. ALL STORM MANHOLES TO BE BENCHED UNLESS NOTED OTHERWISE.
10. CONTRACTOR TO CONFIRM ANY FOUNDATION STABILIZATION REQUIREMENTS OF EXISTING STRUCTURES IN TRENCHING AREA WITH GEOTECHNICAL ENGINEER.
11. EXISTING SANITARY AND STORM SERVICE STUBS ARE TO BE CCTV INSPECTED AFTER SHORING. SUBMIT THE CCTV INSPECTION REPORTS AND VIDEOS TO UTILITIES TO ENSURE NO CONSTRUCTION DAMAGE ON EXISTING SERVICE STUBS.



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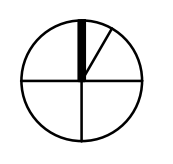
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 tel. (604)299 0605 fax. (604)299 0629

**UBC Hebb Building Upgrade**

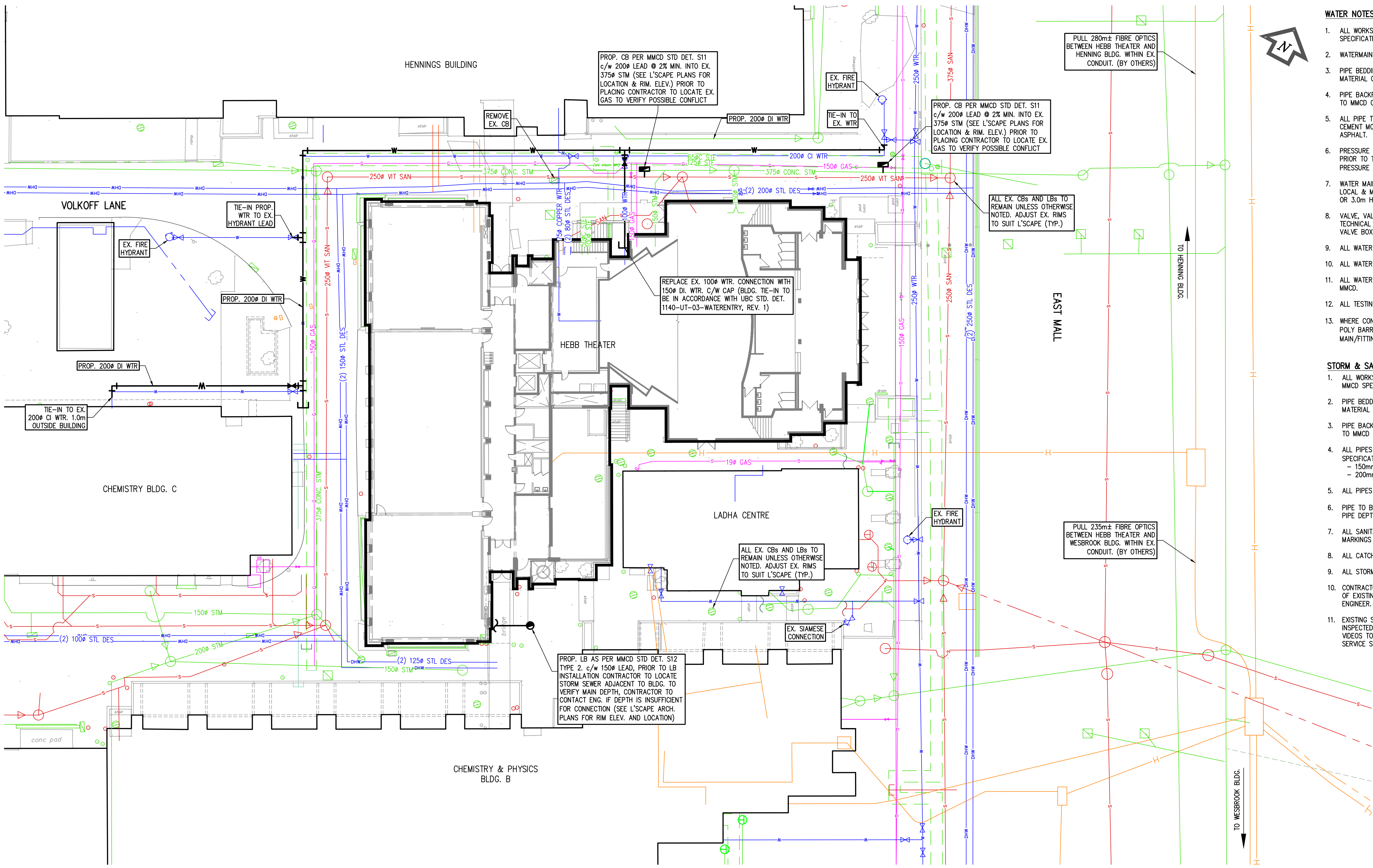
University of British Columbia  
 2045 East Mall

scale	date
project no.	status
1898	DP
drawn	checked
DB	BC

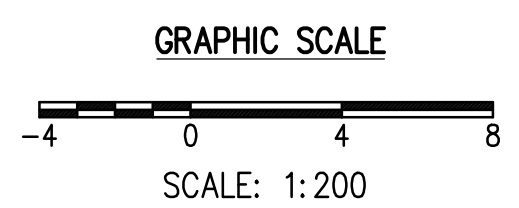


**SITE SERVICING PLAN**

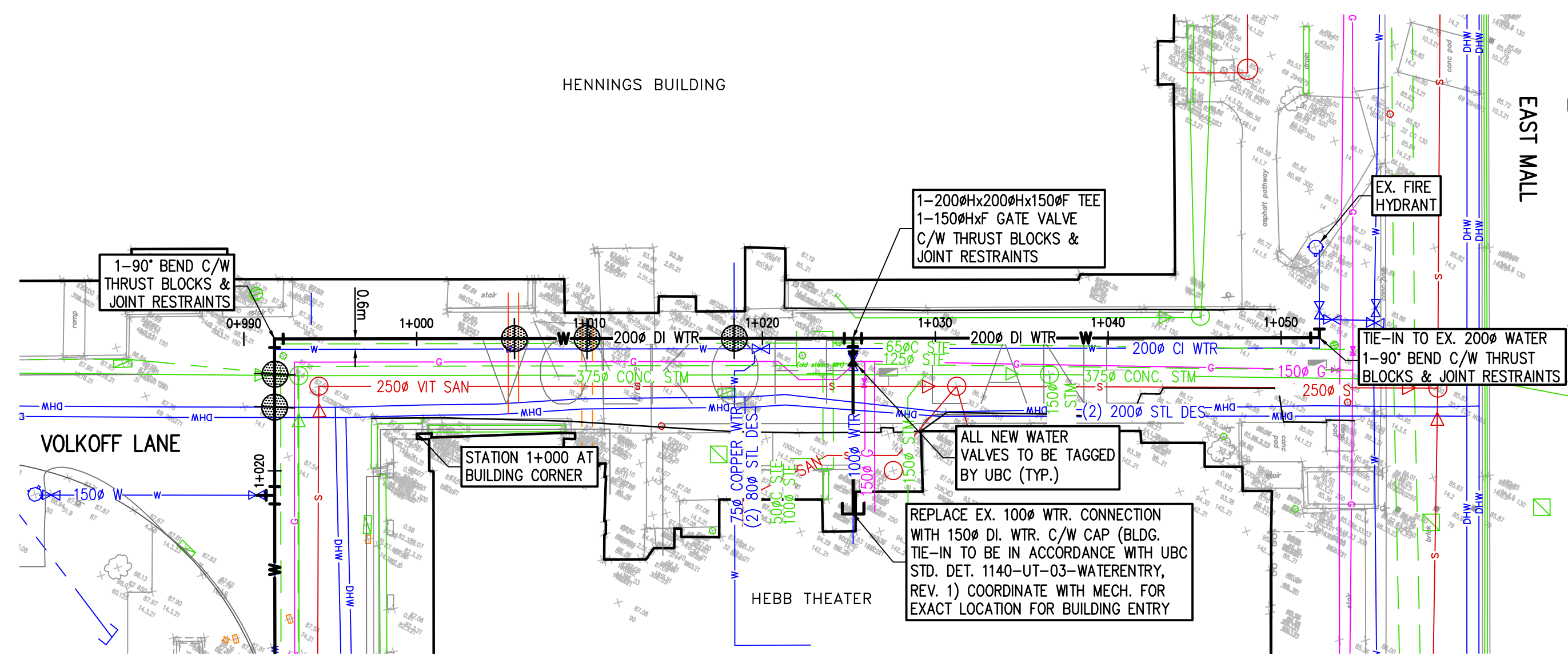
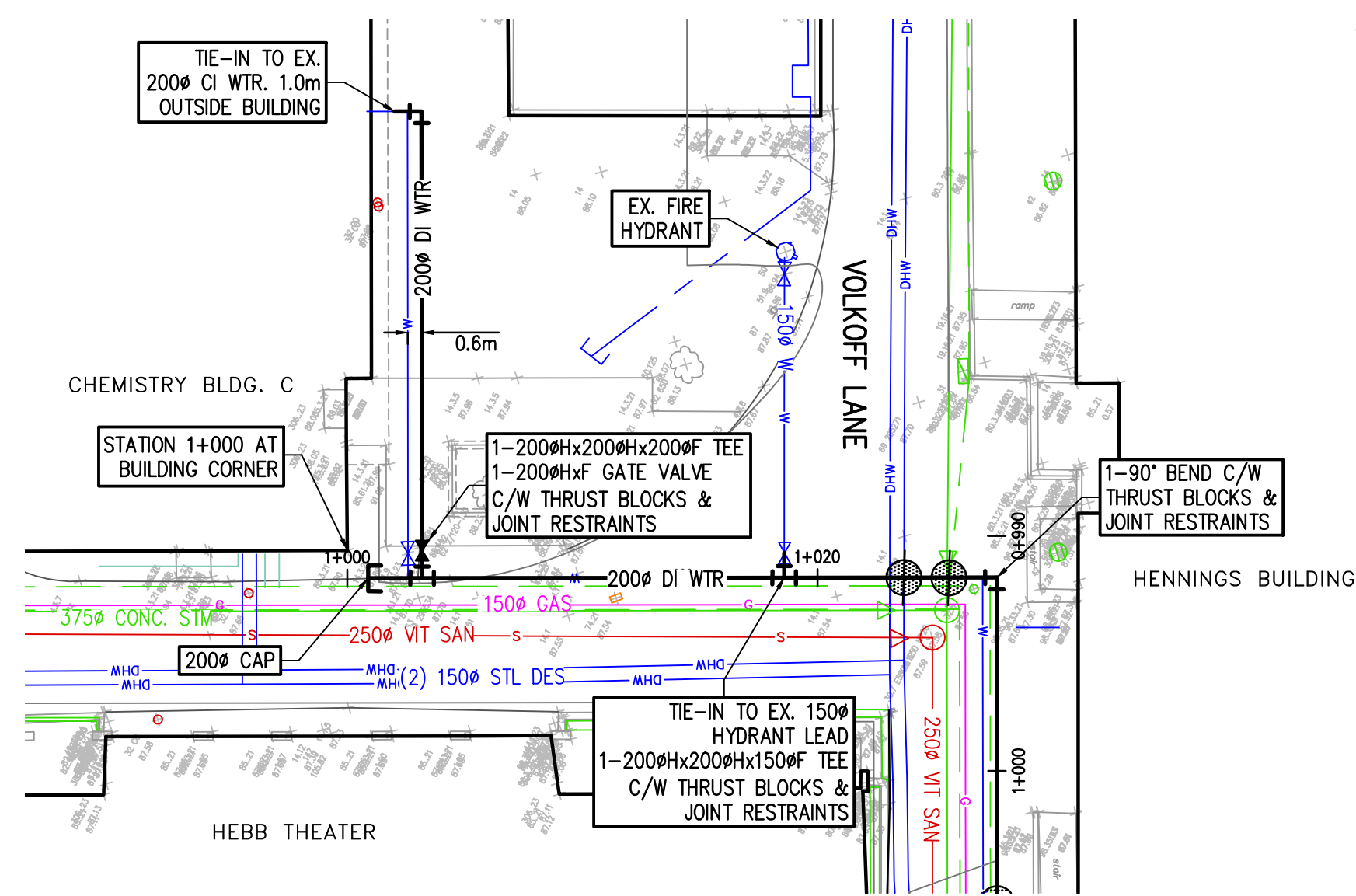
drawing number **C 2**



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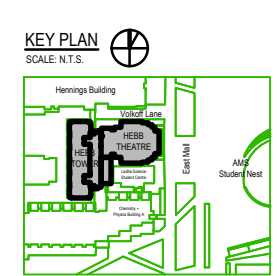


**GENERAL NOTES:**

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- TOPOGRAPHIC SURVEY FOR THIS SITE PROVIDED BY X SURVEYORS.
- UTILITY TRENCH WIDTH VARIES WITH DIAMETER AND DEPTH OF UTILITY PIPE TO BE INSTALLED. MINIMUM WIDTH TYPICALLY 600mm.
- THESE DRAWINGS TO BE READ IN CONJUNCTION WITH OTHER CIVIL AND OTHER DISCIPLINE'S DRAWINGS.

**WATER NOTES**

- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH MMCD AND UBC SPECIFICATIONS.
- WATERMAIN TO HAVE MIN. 1.0m COVER.
- PIPE BEDDING SHALL BE GRANULAR PIPE BEDDING AND SURROUND MATERIAL CONFORMING TO MMCD CLAUSE 2.7, SECTION 02226.
- PIPE BACKFILL SHALL BE 100mm PIT RUN GRAVEL MATERIAL CONFORMING TO MMCD CLAUSE 2.3, SECTION 02226.
- ALL PIPE TO BE CLASS 50 DUCTILE IRON MANUFACTURED TO AWWA C151; CEMENT MORTAR LINED TO AWWA C104 AND COATED 1 MIL. THICK ASPHALT.
- PRESSURE AND BACTERIOLOGICAL TESTING TO BE DONE BY CONTRACTOR PRIOR TO TIE-IN AND ACCEPTANCE BY UBC UTILITIES. ASSUMED TEST PRESSURE OF 1380 kPa (200 psi).
- WATER MAIN OR SERVICE PIPE WALLS TO HAVE WRAPPED JOINTS PER LOCAL & MUNICIPAL HEALTH STANDARDS IF CLOSER THAN 0.5m VERTICAL OR 3.0m HORIZONTAL TO SANITARY OR STORM MAIN PIPE WALLS.
- VALVE, VALVE BOXES, COMPONENTS & HYDRANTS TO BE PER UBC TECHNICAL GUIDELINES SECTION 02660, CLAUSE 2.7 AND 2.8. CIRCULAR VALVE BOXES SHALL BE NELSON TYPE.
- ALL WATER MAIN JOINTS TO BE RESTRAINED.
- ALL WATER MAIN FITTINGS TO BE INSTALLED WITH THRUST BLOCKS PER MMCD.
- ALL TESTING TO BE DONE AND APPROVED BEFORE BACKFILLING PIPE.
- WHERE CONTROLLED DENSITY FILL (CDF) OR CONCRETE IS USED, 6 MIL POLY BARRIER TO BE PLACED BETWEEN CDF/CONCRETE AND WATER MAIN/FITTINGS.



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**UBC Hebb Building Upgrade**  
 University of British Columbia  
 2045 East Mall

scale date  
20 JUNE 2017

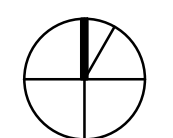
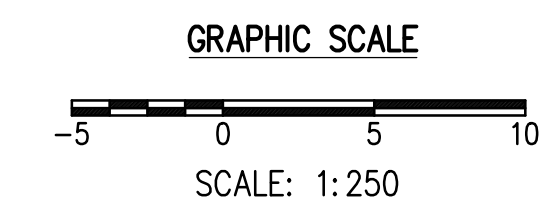
project no. status  
1898 DP

drawn checked  
DB BC

**LEGEND**

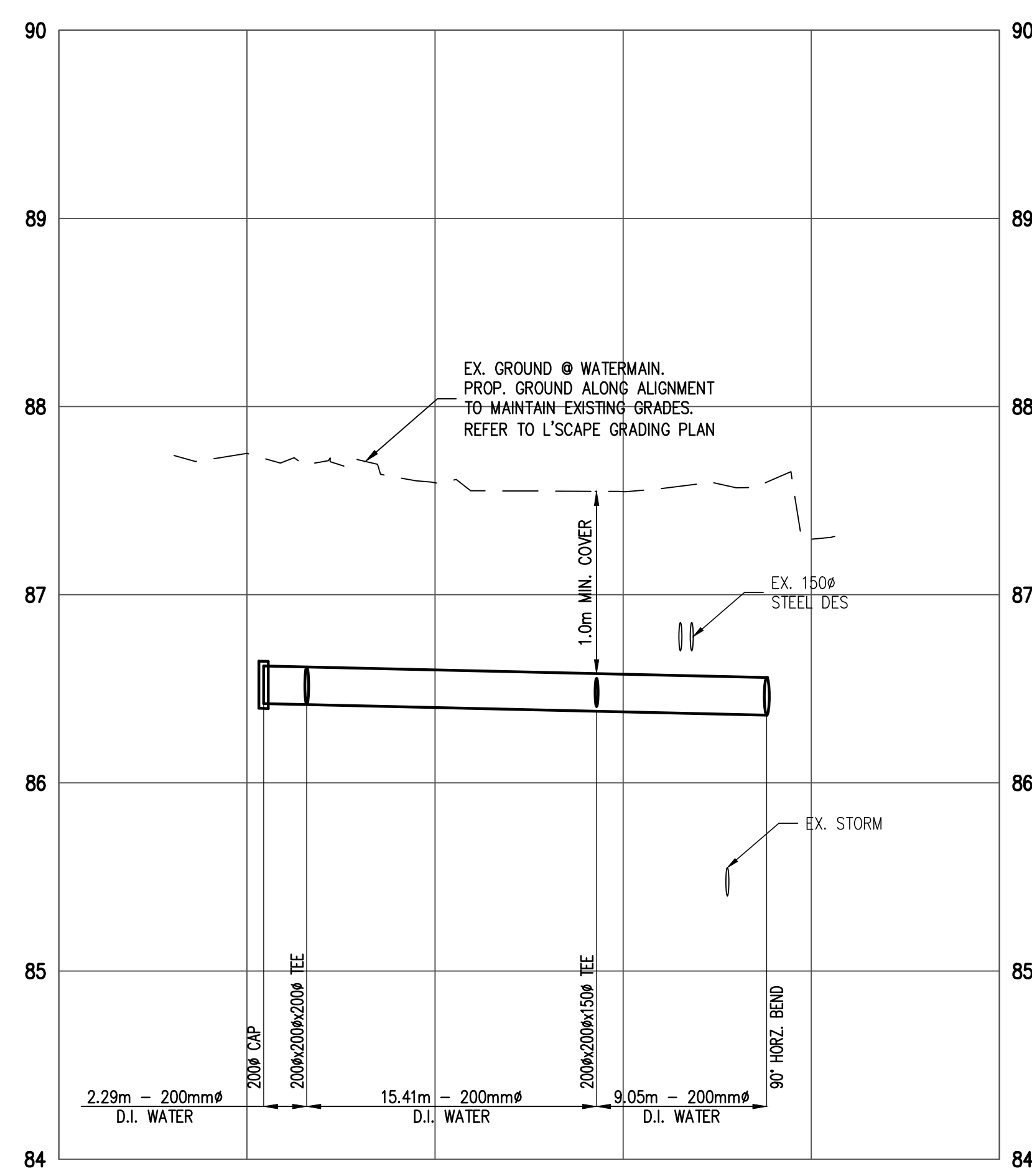
- EX. WATER W
- EX. WATER - IRRIGATION W
- EX. SANITARY SEWER S
- EX. STORM SEWER D
- EX. GAS G
- EX. STEAM
- EX. HYDRO H
- EX. TEL / COMM T
- DISTRICT HOT WATER ALIGNMENT DHW
- ABND. WATER W
- ABND. SANITARY SEWER S
- ABND. STORM SEWER D
- ABND. GAS G
- ABND. STEAM
- PROP. WATER W

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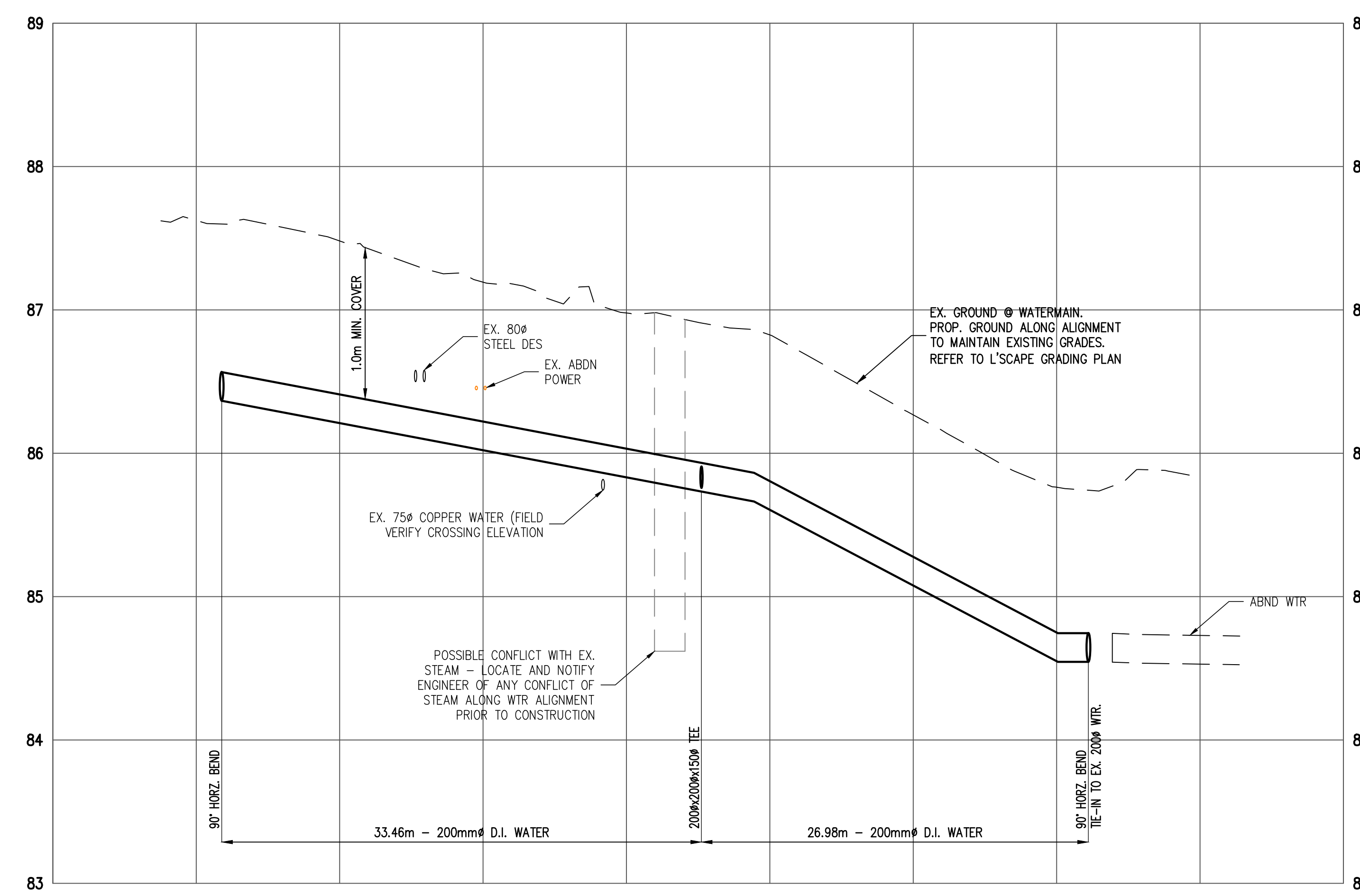


**WATER MAIN PLAN / PROFILE**  
 drawing number

C3



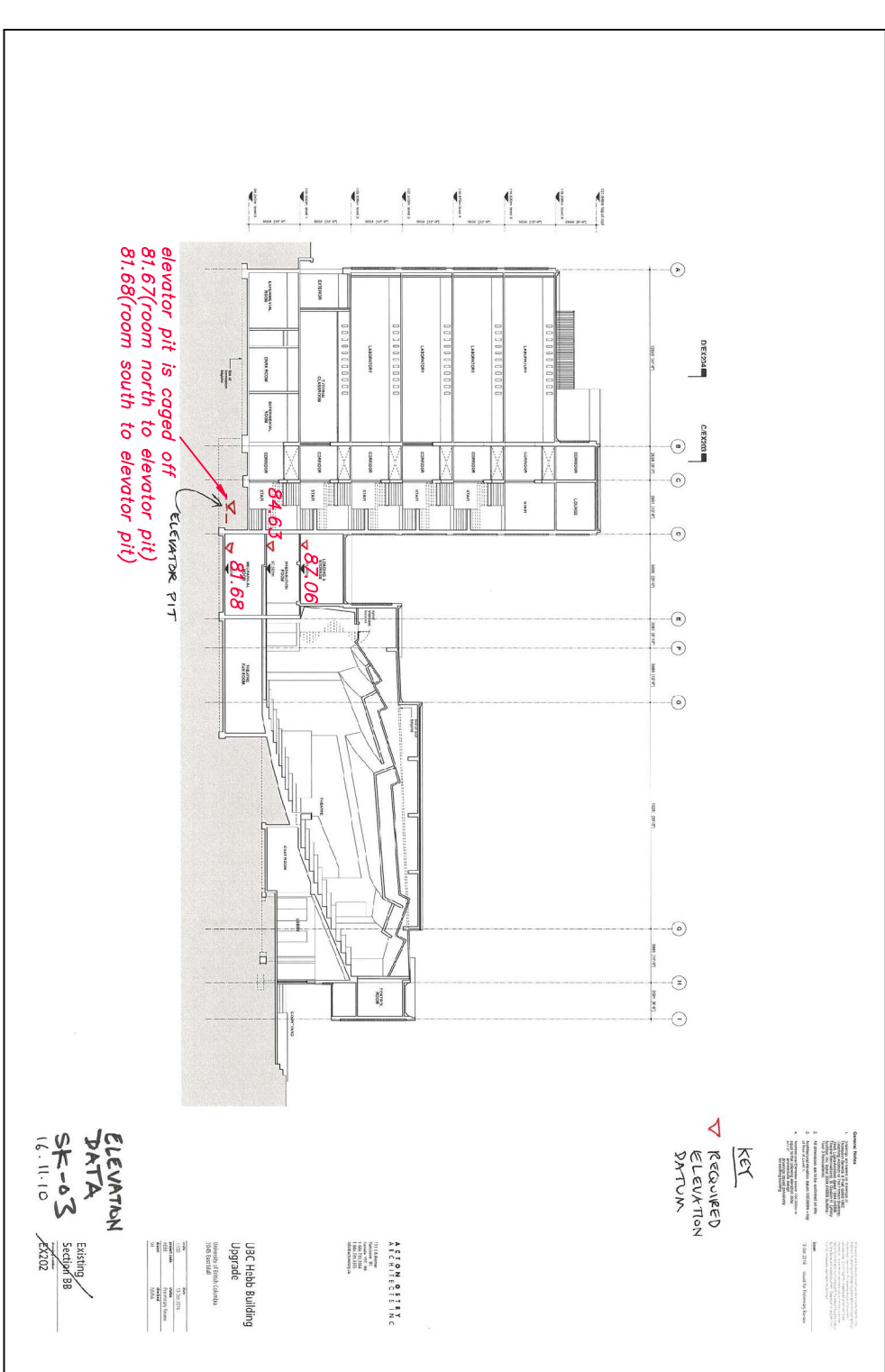
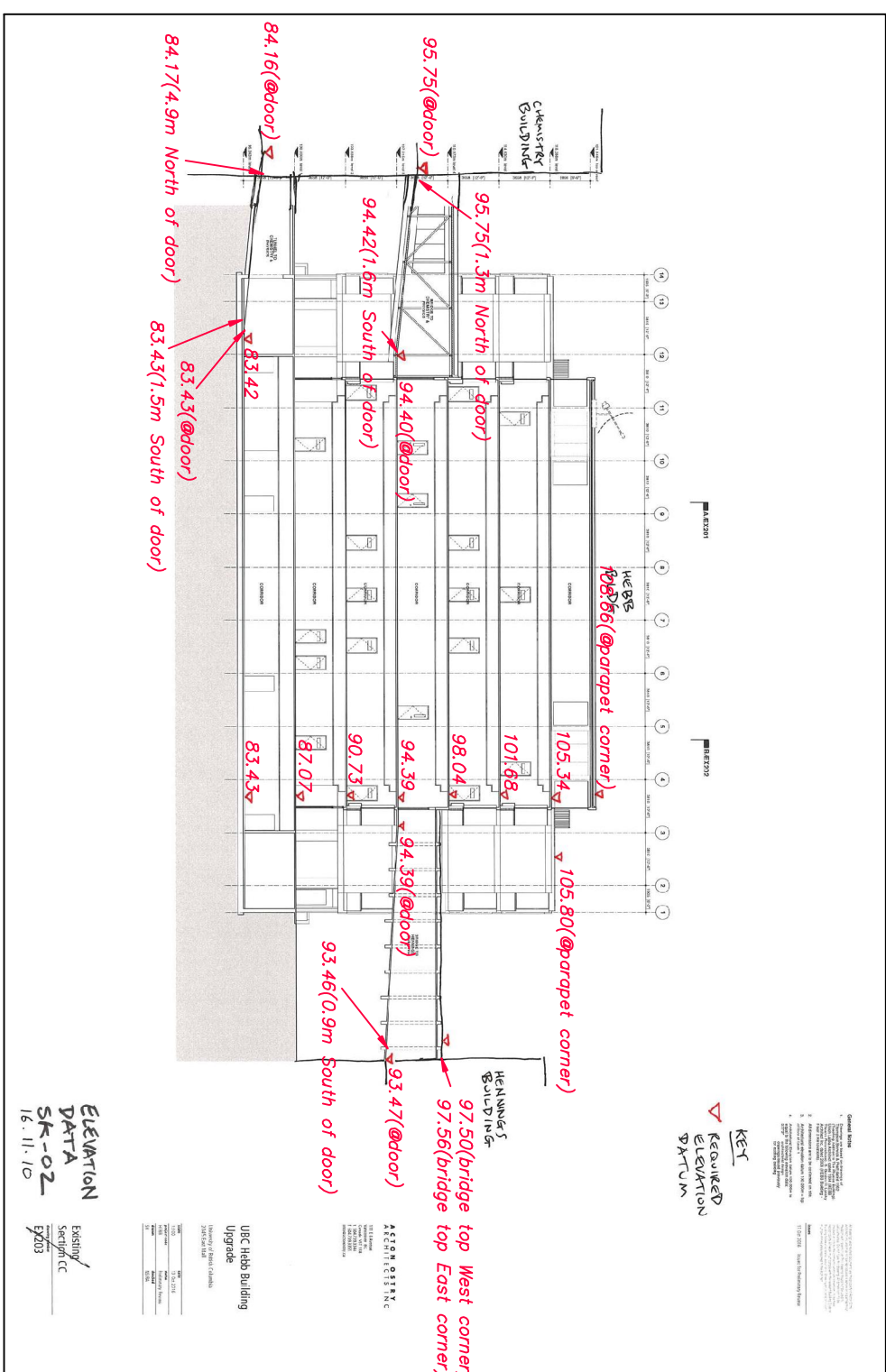
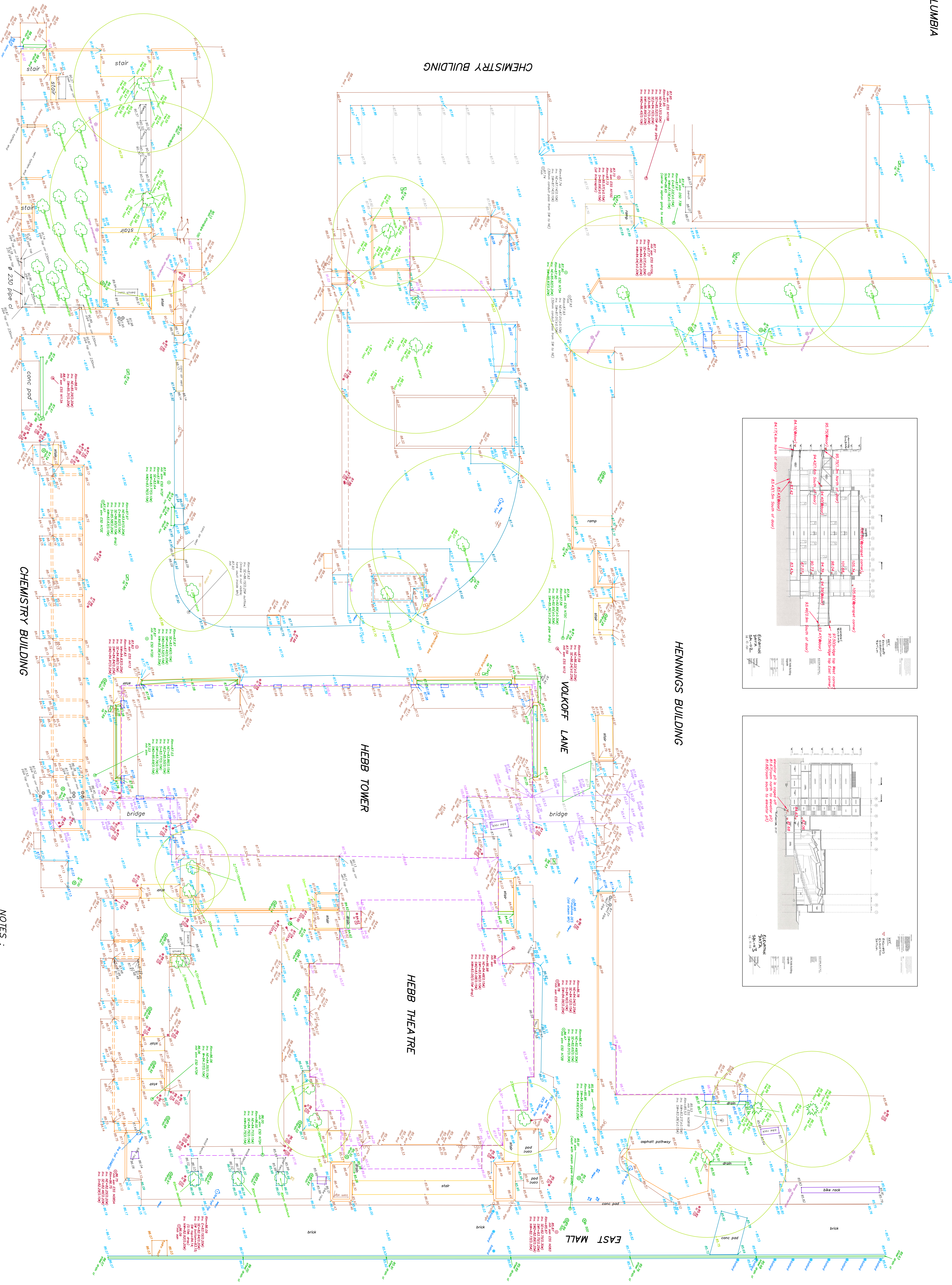
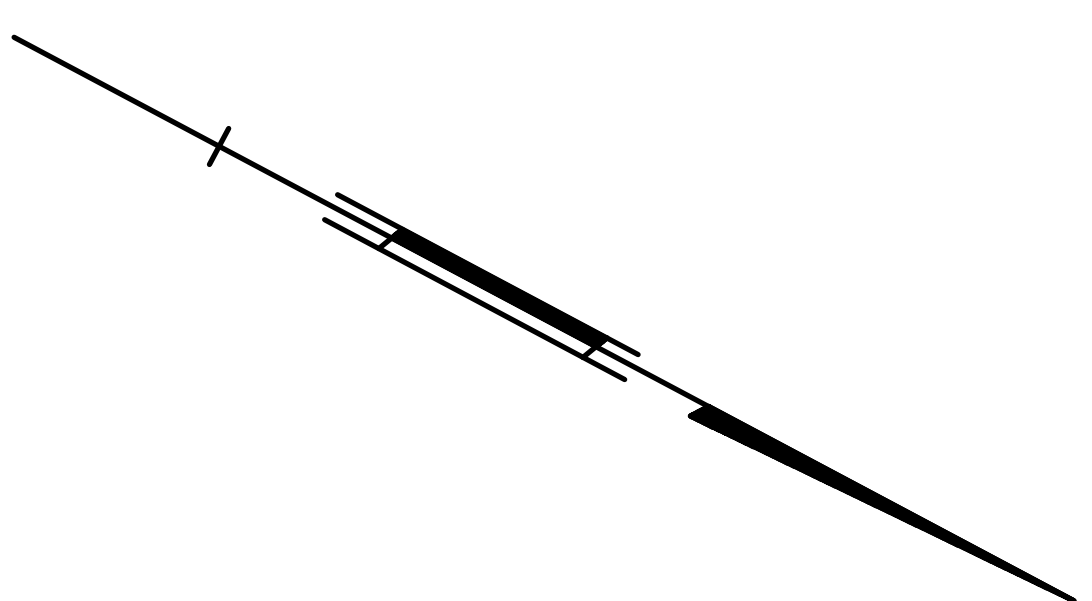
WATERMAIN INVERT	86.43	86.42	86.38	86.36
EXISTING GRADE @ C/L	87.75±	87.60±	87.55±	87.30±
STATION	1+000 1+000.88 1+003.18	1+010	1+018.58 1+020	1+027.63 1+030



WATERMAIN INVERT	86.36	85.73	84.54						
EXISTING GRADE @ C/L	87.62±	87.45±	87.19±	86.95±	86.82±	86.27±	85.75±		
STATION	0+990 0+991.77	1+000	1+010	1+020	1+025.23	1+030	1+040	1+050 1+052.21	1+060



SKETCH SHOWING TOPOGRAPHIC SURVEY OF A PORTION OF  
DISTRICT LOT 3044, GROUP 1, NEW WESTMINSTER DISTRICT EXCEPT  
FIRSTLY; PART ON PLAN 6147  
SECONDLY; PART ON PLAN 9301  
THIRDLY; PART ON PLAN BCP6556  
FOURTHLY; PART ON PLAN BCP23719  
HEBB BUILDING  
UNIVERSITY OF BRITISH COLUMBIA



**NOTES:**  
ALL DIMENSIONS AND DISTANCES SHOWN ARE IN METERS.  
ALL ELEVATIONS ARE DERIVED FROM THE POINT LOCATED  
ON EAST MALL IN FRONT OF THE CHEMISTRY BUILDING  
(GEODETIC ELEVATION = 93.6371 BOULEVARD)  
THIS PLAN SHOWS THE LOCATION OF VISIBLE FEATURES ONLY, AND DOES  
NOT SHOW THE EXACT LOCATION OF THE BUILDINGS OR THE  
SUBJECT SITE BOUNDARIES THAT MAY EXIST ON OR AROUND THE  
SUBJECT SITE.  
THE SPACING AND DIMENSIONS SHOULD BE CONSIDERED BY A QUALIFIED  
ENGINEER. THESE DIMENSIONS ARE NOT AN INDICATION OF BEING THE LOCATION  
UNLESS SPECIFICALLY LABELLED.