

CAPE BEALE LIGHT TOWER REFURBISHMENT Fisheries and Oceans Canada



**CAPE BEALE
LIGHT TOWER
REFURBISHMENT**
Fisheries and Oceans Canada

STRUCTURAL

WSP
Suite 400, 401 Garbally Road
Victoria, B C, V8T 5M3
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Email: randy.emery@wspgroup.com
Contact: Randy Emery

| DWG # | DESCRIPTION |
|-------|------------------------------------|
| S000 | COVER SHEET |
| S001 | NOTES, SITE PLAN |
| S002 | EXISTING CONDITIONS/DECONSTRUCTION |
| S003 | NEW STRUCTURAL FRAMING |
| S004 | STRUCTURAL SECTIONS & DETAILS |

BUILDING ENVELOPE

GOAL Engineering Ltd
Unit #9 - 755 Vanalman Avenue
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Tel: (250) 744-3992
Fax: (604) 360-2166
Email: govstaas@goalengineering.com
Contact: Greg Ovstaas

| DWG # | DESCRIPTION |
|-------|---|
| D001 | BUILDING ENVELOPE ELEVATIONS & SECTIONS |

ISSUED FOR:
TENDER

DATE:
OCTOBER 9, 2015

SET NO.:



SUITE 400-401 GARBALLY ROAD
VICTORIA (BRITISH COLUMBIA) CANADA V8T 5M3
TEL: 250-384-5510 | FAX: 250-386-2844 | WWW.WSPGROUP.COM

WSP PROJECT NO: 131-19104-11
DFO PROJECT NO: F1700-150861
CCG DRAWING NO: 10247

GENERAL NOTES

- CONTRACTOR TO VERIFY ALL DIMENSIONS FOR BUILDING (INCLUDING EXISTING STRUCTURAL MEMBER SIZES) PRIOR TO COMMENCEMENT OF WORK AND NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES.
- DRAWINGS SHOW THE COMPLETED PROJECT. THEY DO NOT SHOW COMPONENTS WHICH MAY BE NECESSARY FOR CONSTRUCTION SAFETY. CONTRACTOR IS RESPONSIBLE FOR SAFETY ON AND ABOUT THE JOB SITE DURING CONSTRUCTION.
- CONTRACTOR TO ENSURE THAT ALL WORK IS CARRIED OUT BY THE RULES AND CUSTOMS OF THE BEST TRADE PRACTICES AND THEIR SPECIFICATIONS BY SKILLED TRADES PEOPLE KNOWLEDGEABLE OF THE TYPE OF CONSTRUCTION THEY ARE TO BE PROPERLY EQUIPPED AND SUPERVISED.
- NOTIFY DEPARTMENTAL REPRESENTATIVE 96 HOURS IN ADVANCE FOR CONSTRUCTION REVIEW OF THE WORK.
- STRUCTURAL DESIGN DATA
 - ENGINEER OF RECORD: RANDALL EMERY, P. ENG. (STRUCTURAL)
GREG OVSTAAS, P. ENG. (BUILDING ENVELOPE)
 - DESIGN CODE - NATIONAL BUILDING CODE OF CANADA 2010.

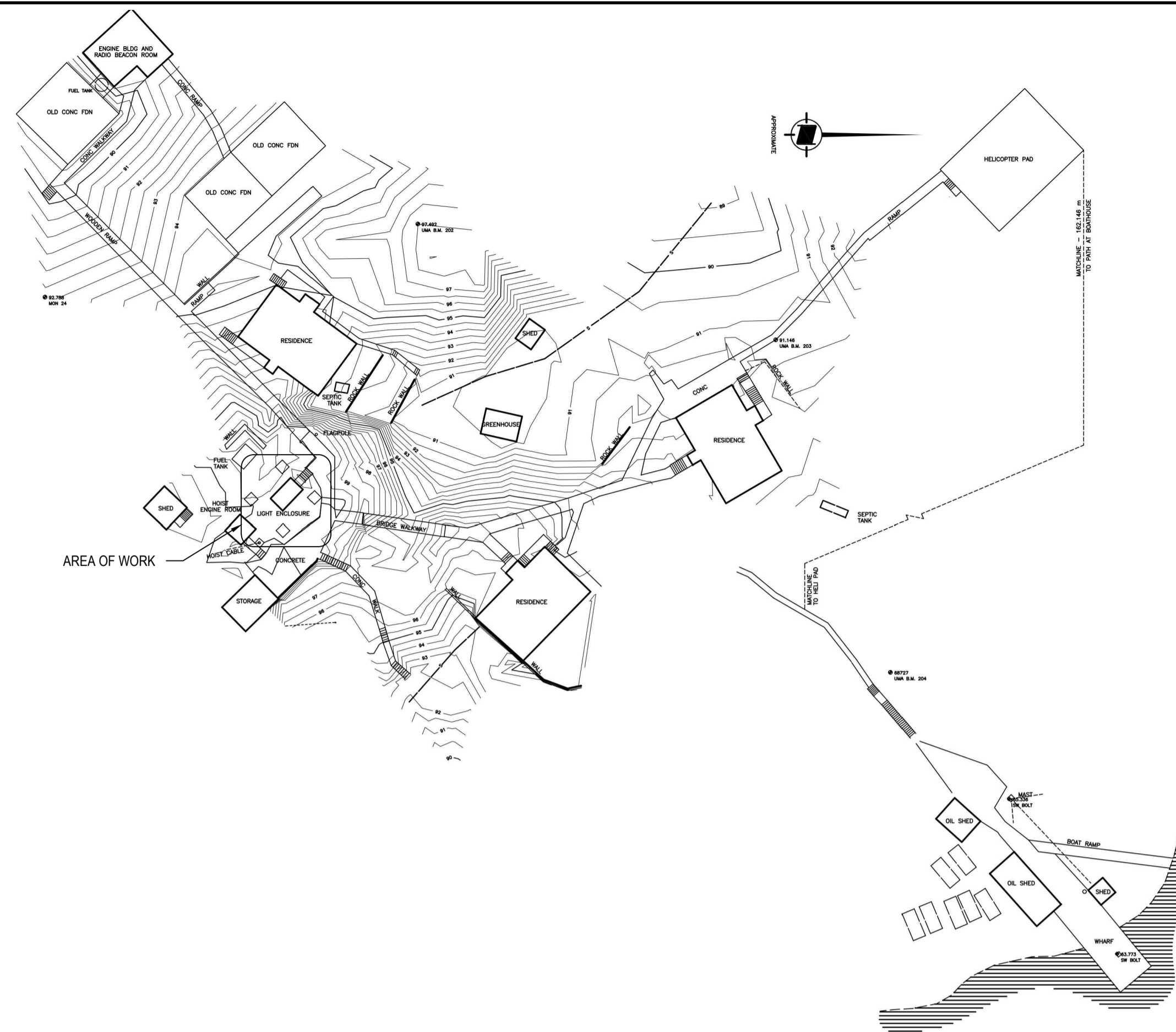
| | | | | |
|---|------------|------------|------------|-----------------|
| DESIGN PARAMETERS | | | | |
| BUILDING IMPORTANCE CATEGORY NORMAL | | | | |
| SNOW LOAD PARAMETERS | | | | |
| S _s = 1.1 kPa S _r = 0.40 kPa I _s [ULS] = 1.0 I _s [SLS] = 0.9 | | | | |
| WIND LOAD PARAMETERS | | | | |
| q ₅₀ = 0.68 kPa I _w [ULS] = 1.0 I _w [SLS] = 0.75 | | | | |
| SEISMIC PARAMETERS | | | | |
| S _a (0.2) = 1.2 S _a (0.5) = 0.94 S _a (1.0) = 0.48 S _a (2.0) = 0.21 PGA = 0.52 | | | | |
| I _e = 1.0 | | | | |
| SITE CLASS: C (ASSUMED) | | | | |
| DESIGN LOADS | | | | |
| GRAVITY | | | | |
| | SNOW (kPa) | LIVE (kPa) | DEAD (kPa) | PARTITION (kPa) |
| ROOF | 1.28 | - | 1.00 | - |
| FLOORS | - | 2.40 | 1.00 | - |
| LATERAL - WIND | | | | |
| DESIGN WALL PRESSURE FOR WALL CLADDING AND SUPPORT FRAMING - CAPE BEALE | | | | |
| STRENGTH (FACTORED) | 3.54 kPa | | | |
| DEFLECTION | 1.90 kPa | | | |

STRUCTURAL STEEL NOTES

- STRUCTURAL STEEL TO CONFORM TO THE REQUIREMENTS OF THE FOLLOWING STANDARDS:
CHANNELS, ANGLES & PLATE: G40 21 350W
HSS & LIGHT GAUGE SECTIONS: G40 21 350W
BOLTS STEEL CONNECTIONS: ASTM A325 (HDG)
ANCHOR BOLTS: ASTM F593 (AISI 316)
BOLTS (WOOD PLATES): ASTM F593 (AISI 316)
- FABRICATION, ERECTION, STRUCTURAL DESIGN, & DETAILING OF ALL STRUCTURAL STEEL TO BE IN ACCORDANCE WITH CAN/CSA-S16-09.
- ALL WELDING TO CONFORM TO CSA W59 AND BE PERFORMED BY FABRICATORS 'FULLY APPROVED' BY THE CANADIAN WELDING BUREAU UNDER CSA W47. FABRICATING SHOP TO HAVE A DIVISION 1 OR 2 CERTIFICATION BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA W47.1 AND SUBMIT PROOF OF CERTIFICATION PRIOR TO START OF WORK.
- FIELD WELDING IS NOT PERMITTED.
- STRUCTURAL STEEL SHOP DRAWINGS. SUBMIT 4 COPIES OF SHOP DRAWINGS TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DIMENSIONS AND FIT-UP OF ALL COMPONENTS.

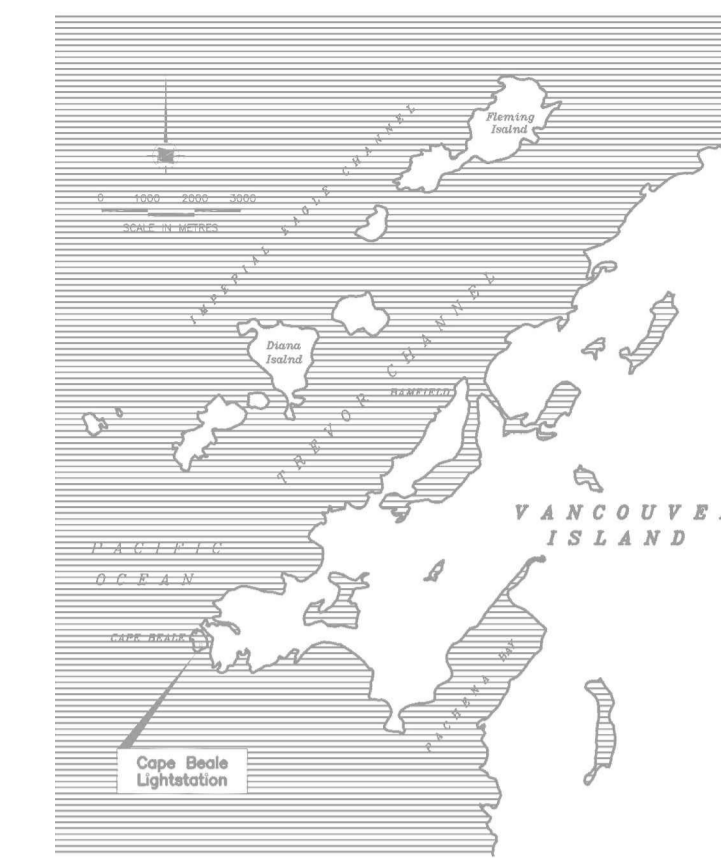
WOOD FRAMING NOTES

- ALL STRUCTURAL LUMBER SHALL HAVE AN AVERAGE EQUILIBRIUM MOISTURE CONTENT NOT EXCEEDING 15% OR LESS OVER A YEAR AND NOT EXCEEDING 19% AT ANY TIME. ALL WOOD TO BE PRESSURE TREATED.
- SAWN LUMBER FRAMING GRADES AND SPECIES SHALL CONFORM TO STRUCTURAL LUMBER COMPLYING WITH THE REQUIREMENTS OF CSA STANDARD CAN/CSA-O141. ALL WOOD TO BE HEM-FIR GRADE SELECT STRUCTURAL.
- NAILS AND SPIKES: TO CSA-B111.
- BOLTS: 5 mm (3/16") DIAMETER CARRIAGE BOLTS TO ASTM F593 (AISI 316), COMPLETE WITH NUTS AND WASHERS, UNLESS SHOWN OTHERWISE.
- WOOD PRESERVATIVES SHALL CONFORM TO AND BE APPLIED IN ACCORDANCE WITH CSA-080-M. WOOD PRESERVATION SHALL BE EITHER ALKALINE COPPER QUATERNARY (ACQ) OR COPPER AZOLE (CA). ACQ MAYBE EITHER TYPE ACQ-B (AMMONIACAL) OR TYPE ACQ-D (AMINE). PRESERVATIVES SHALL BE APPLIED TO THE WOOD IN A WATER SOLUTION TO RETENTION LEVELS RECOMMENDED BY THE MANUFACTURER. FIELD TREAT ALL CUT ENDS, NOTCHES AND BOLT HOLES. SUBMIT PRESERVATIVE SPECIFICATIONS TO THE DEPARTMENTAL REPRESENTATIVE FOR APPROVAL. WOOD PRESERVATIVES TO CONFORM TO REQUIREMENT OF LOCAL AUTHORITY.
- NAILS, BOLTS AND METALS IN CONTACT WITH PRESERVED WOOD PRODUCTS SHALL BE HOT DIPPED GALVANIZED TO STANDARD ASTM A153 WITH A G185 GALVANIZING DESIGNATION THAT MEETS ASTM A653. STAINLESS STEEL CAN ALSO BE USED.



CAPE BEALE SITE PLAN

SCALE: N.T.S.

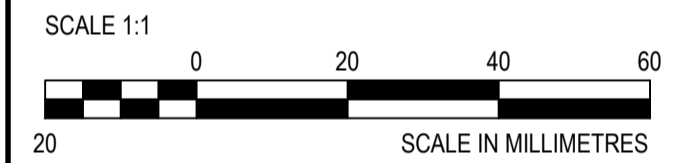
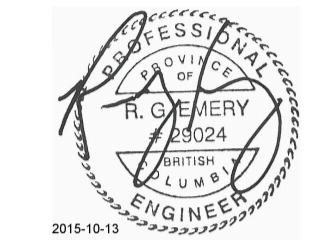


CAPE BEALE KEY PLAN

SCALE: N.T.S.



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| 1 | ISSUED FOR TENDER | 10/09/2015 |
| 0 | 90% SUBMISSION FOR REVIEW | 05/26/2015 |
| Revision/ | Description/Description | Date/Date |

Client/client

Fisheries and Oceans Canada

25 Huron Street

Victoria, BC

Project title/Titre du projet

CAPE BEALE

TOWER REFURBISHMENT

Approved by/Approuvé par

Designed by/Concept par
RANDALL EMERY, P. ENG.

Drawn by/Dessiné par
ROD MAR/2015.08/04

PWGSC Project Manager/Administrateur de Projets TPSSC

PWGSC, Architectural and Engineering Resources Manager/
Ressources Architecturale et de Directeur d'Ingénierie, TPSSC

Client/client

Drawing title/Titre du dessin

NOTES

SITE PLAN

Project No./No. du projet
F1700-150861

CCC Drawing No./No. du dessin
10247

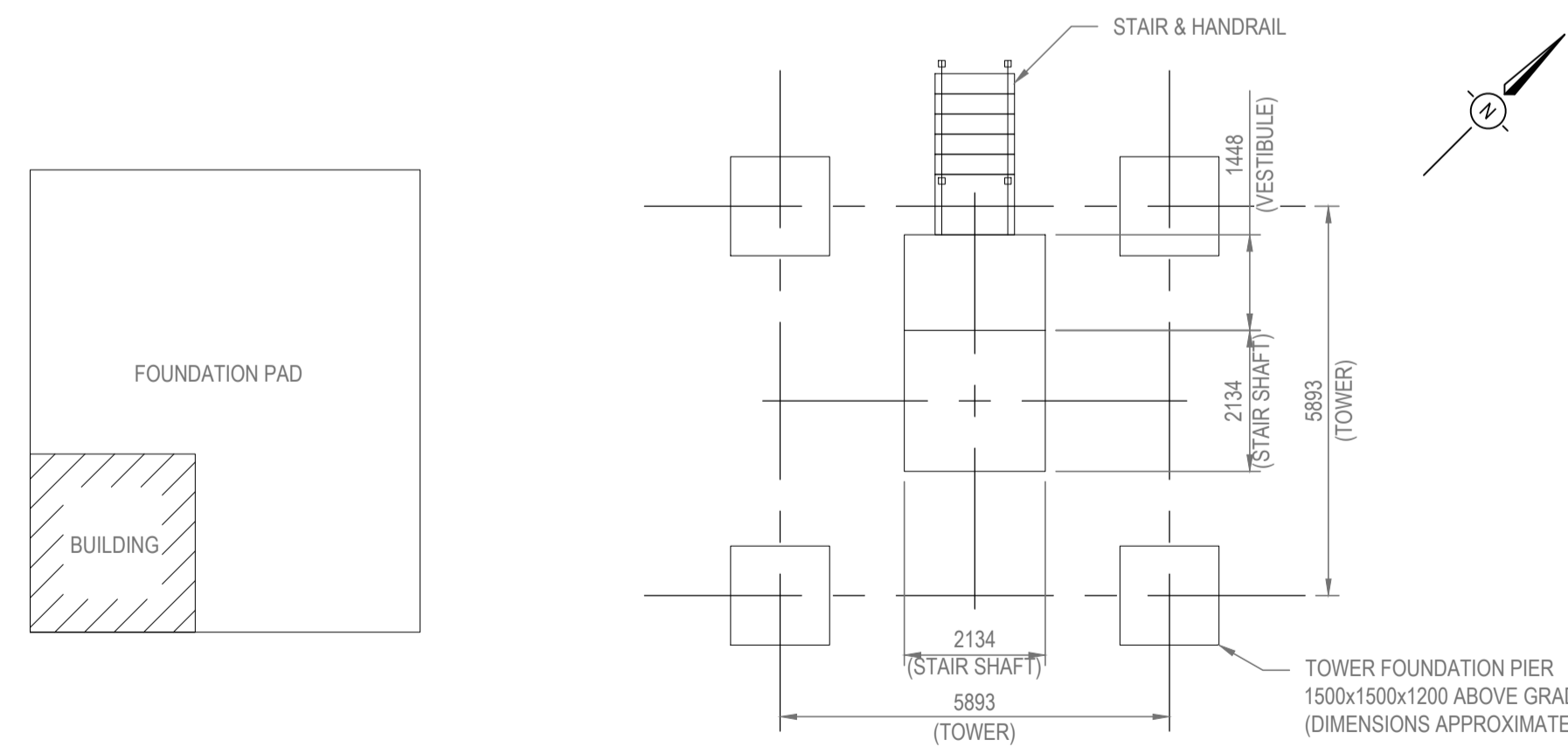
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S001

Revision no./La Révision no.
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1 OF 5

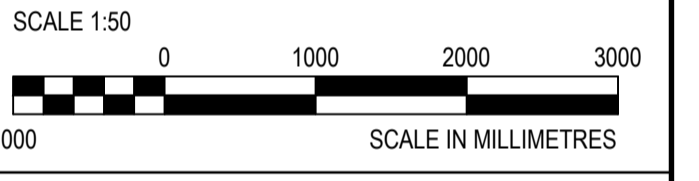
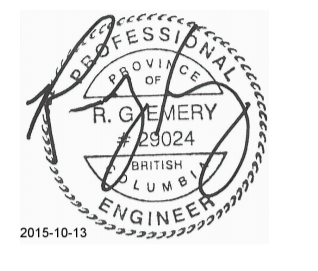
ABBREVIATIONS

| | |
|--------|-----------------------------|
| AB | - ANCHOR BOLT |
| ALT | - ALTERNATE |
| APPROX | - APPROXIMATELY |
| BOT | - BOTTOM |
| BLDG | - BUILDING |
| BP | - BASE PL |
| BS | - BOTH SIDES |
| CP | - COMPLETE PENETRATION WELD |
| C/W | - COMPLETE WITH |
| DWG | - DRAWING |
| (E) | - EXISTING |
| EF | - EACH FACE |
| EW | - EACH WAY |
| FTG | - FOOTING |
| GALV | - GALVANIZED |
| HORIZ | - HORIZONTAL |
| HDG | - HOT DIPPED GALVANIZED |
| LG | - LONG |
| MAX | - MAXIMUM |
| MIN | - MINIMUM |
| (N) | - NEW |
| NS | - NEAR SIDE |
| NTS | - NOT TO SCALE |
| PT | - PRESSURE TREATED |
| OC | - ON CENTER |
| R/W | - REINFORCE WITH |
| REINF | - REINFORCEMENT |
| SS | - STAINLESS STEEL |
| STD | - STANDARD |
| TYP | - TYPICAL |
| UN | - UNLESS NOTED |
| VERT | - VERTICAL |



CAPE BEALE FOUNDATION LAYOUT

SCALE: 1:100



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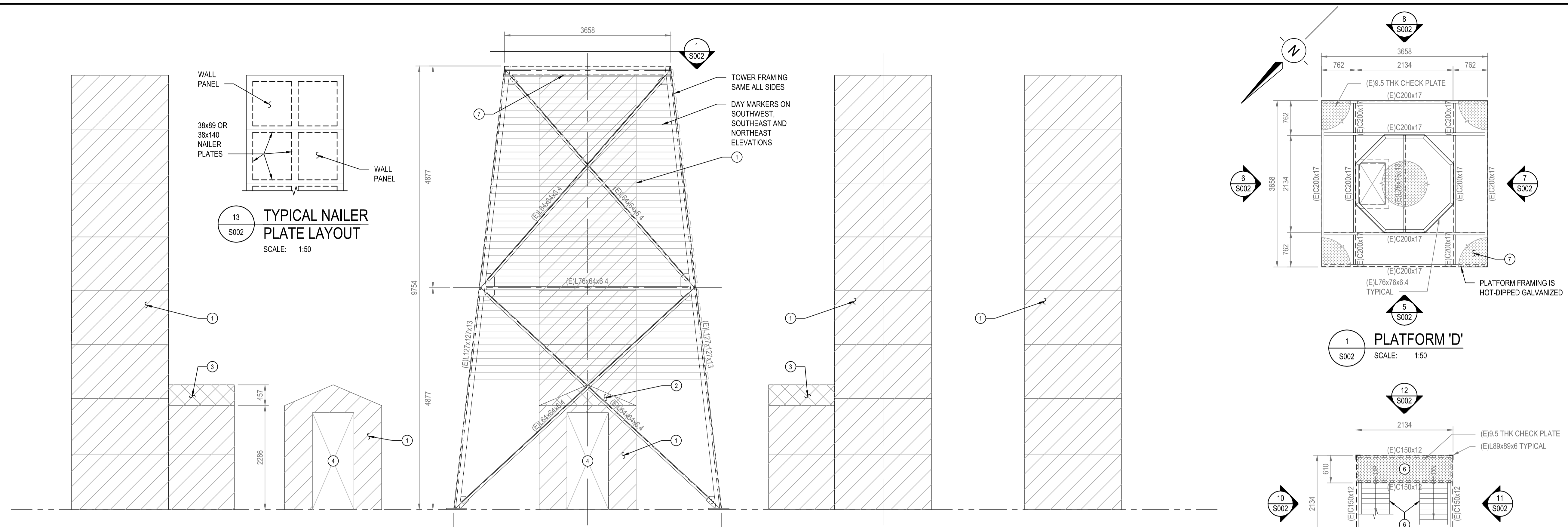
Project title/Titre du projet
CAPE BEALE TOWER REFURBISHMENT

Approved by/Approve par
Designed by/Concept par
RANDALL EMERY, P. ENG
Drawn by/Designe par
ROD MAR/2015.08/04
PWGSC Project Manager/Administrateur de Projets TP50C

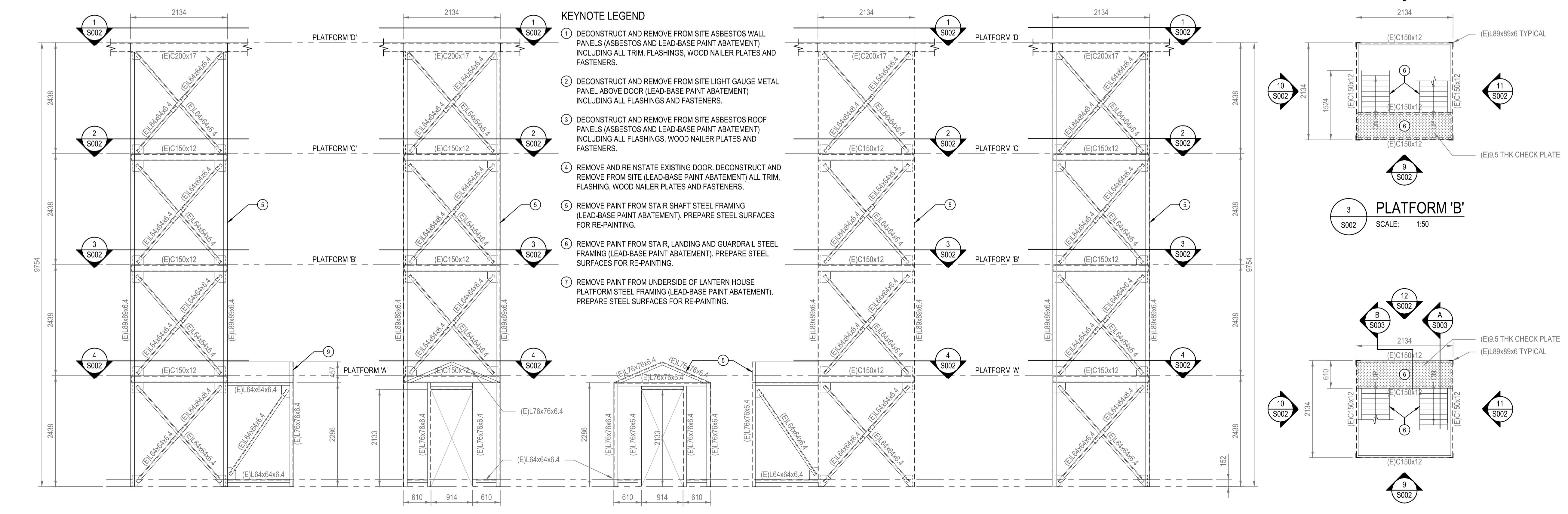
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Client/client
Drawing title/Titre du dessin
EXISTING CONDITIONS DECONSTRUCTION CAPE BEALE

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| Project No./No. du projet F1700-150861 | Sheet/Feuille S002 | Revision no./La Révision no. 1 |
| CC Drawing No./No. du dessin 10247 | 2 OF 5 | |



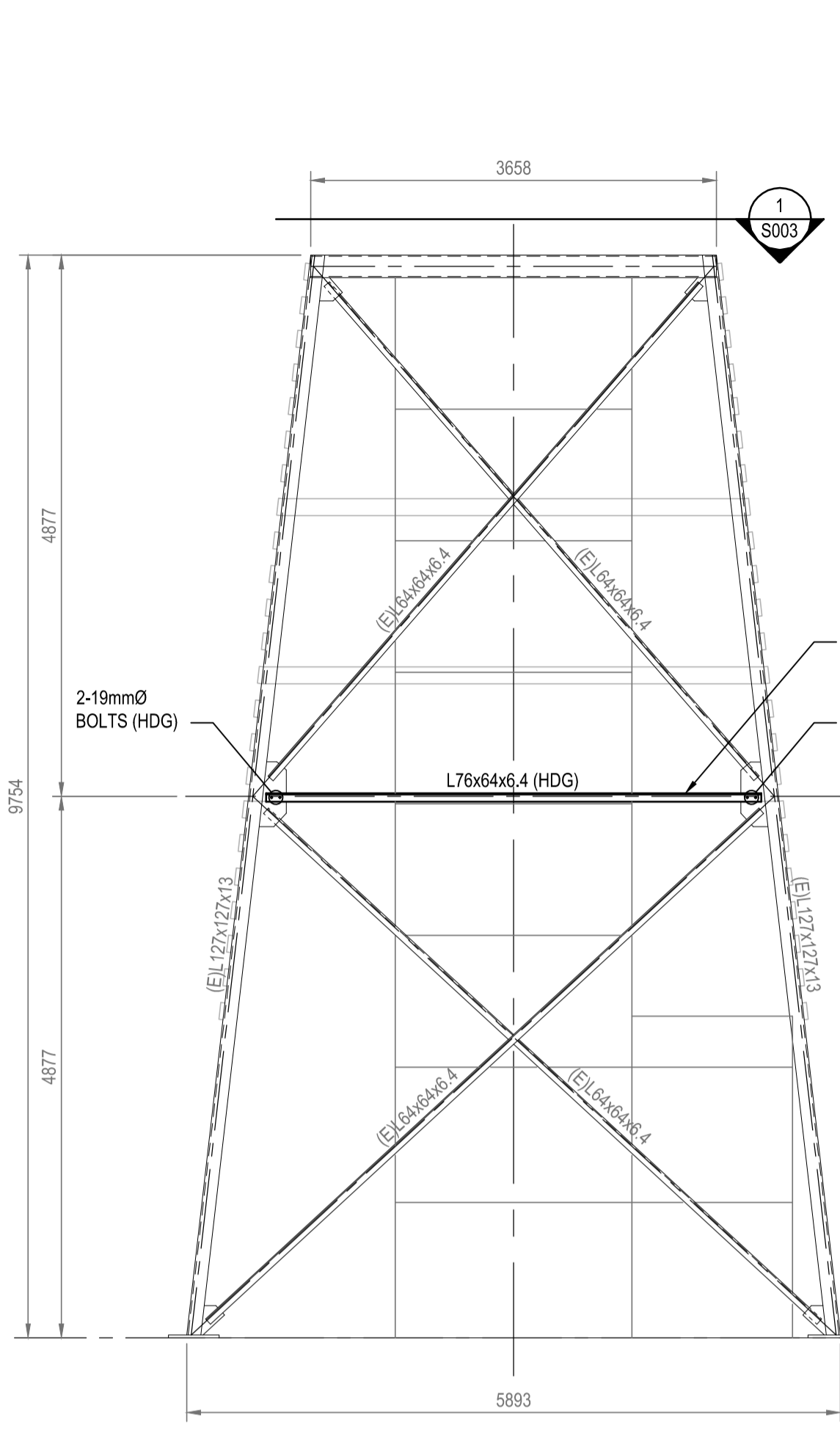
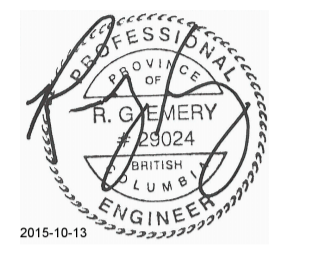
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5A INTERIOR DOOR ELEVATION SCALE: 1:50
5 NORTHWEST ELEVATION SCALE: 1:50
7 SOUTHWEST ELEVATION SCALE: 1:50
8 SOUTHEAST ELEVATION SCALE: 1:50
1 PLATFORM 'D' SCALE: 1:50
12 PLATFORM 'C' SCALE: 1:50
10 PLATFORM 'B' SCALE: 1:50
11 PLATFORM 'A' SCALE: 1:50



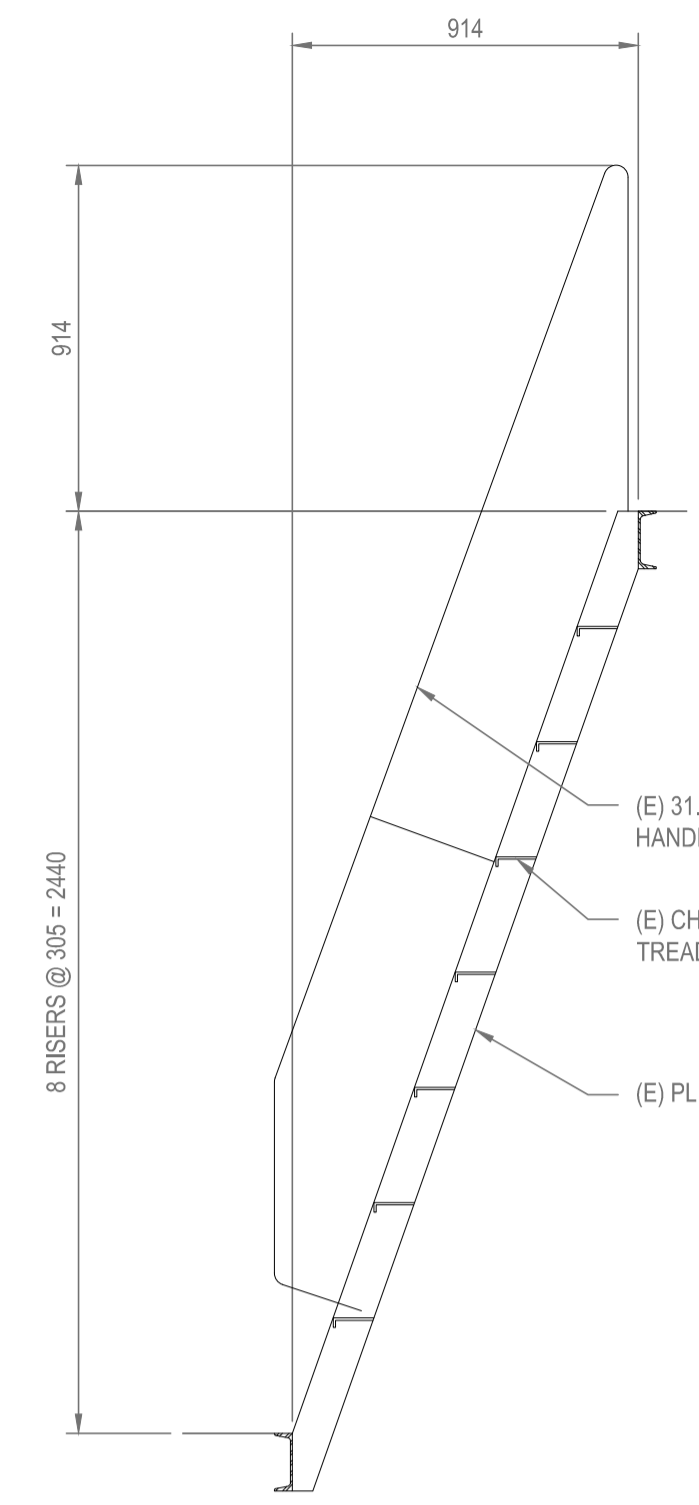
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9 NORTHWEST ELEVATION SCALE: 1:50
9A VESTIBULE ELEVATION SCALE: 1:50
11 SOUTHWEST ELEVATION SCALE: 1:50
12 SOUTHEAST ELEVATION SCALE: 1:50
4 PLATFORM 'A' SCALE: 1:50
3 PLATFORM 'B' SCALE: 1:50
2 PLATFORM 'C' SCALE: 1:50
1 PLATFORM 'D' SCALE: 1:50

- KEYNOTE LEGEND**
- 1 DECONSTRUCT AND REMOVE FROM SITE ASBESTOS WALL PANELS (ASBESTOS AND LEAD-BASE PAINT ABATEMENT) INCLUDING ALL TRIM, FLASHINGS, WOOD NAILER PLATES AND FASTENERS.
 - 2 DECONSTRUCT AND REMOVE FROM SITE LIGHT GAUGE METAL PANEL ABOVE DOOR (LEAD-BASE PAINT ABATEMENT) INCLUDING ALL FLASHINGS AND FASTENERS.
 - 3 DECONSTRUCT AND REMOVE FROM SITE ASBESTOS ROOF PANELS (ASBESTOS AND LEAD-BASE PAINT ABATEMENT) INCLUDING ALL FLASHINGS, WOOD NAILER PLATES AND FASTENERS.
 - 4 REMOVE AND REINSTATE EXISTING DOOR. DECONSTRUCT AND REMOVE FROM SITE (LEAD-BASE PAINT ABATEMENT) ALL TRIM, FLASHING, WOOD NAILER PLATES AND FASTENERS.
 - 5 REMOVE PAINT FROM STAIR SHAFT STEEL FRAMING (LEAD-BASE PAINT ABATEMENT). PREPARE STEEL SURFACES FOR RE-PAINTING.
 - 6 REMOVE PAINT FROM STAIR, LANDING AND GUARDRAIL STEEL FRAMING (LEAD-BASE PAINT ABATEMENT). PREPARE STEEL SURFACES FOR RE-PAINTING.
 - 7 REMOVE PAINT FROM UNDERSIDE OF LANTERN HOUSE PLATFORM STEEL FRAMING (LEAD-BASE PAINT ABATEMENT). PREPARE STEEL SURFACES FOR RE-PAINTING.

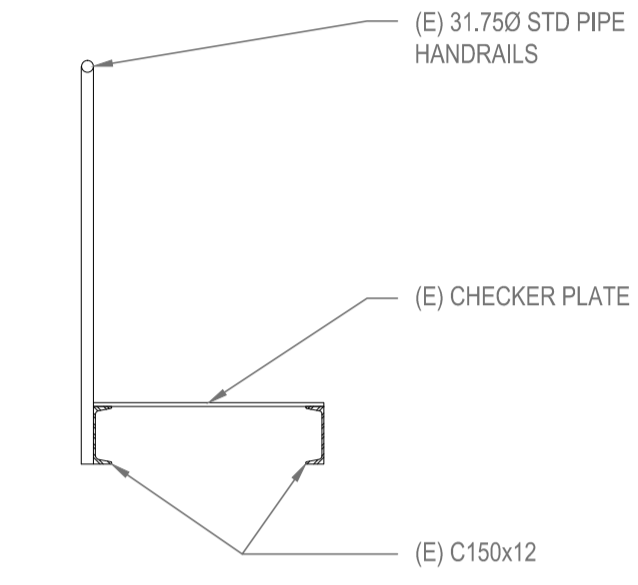




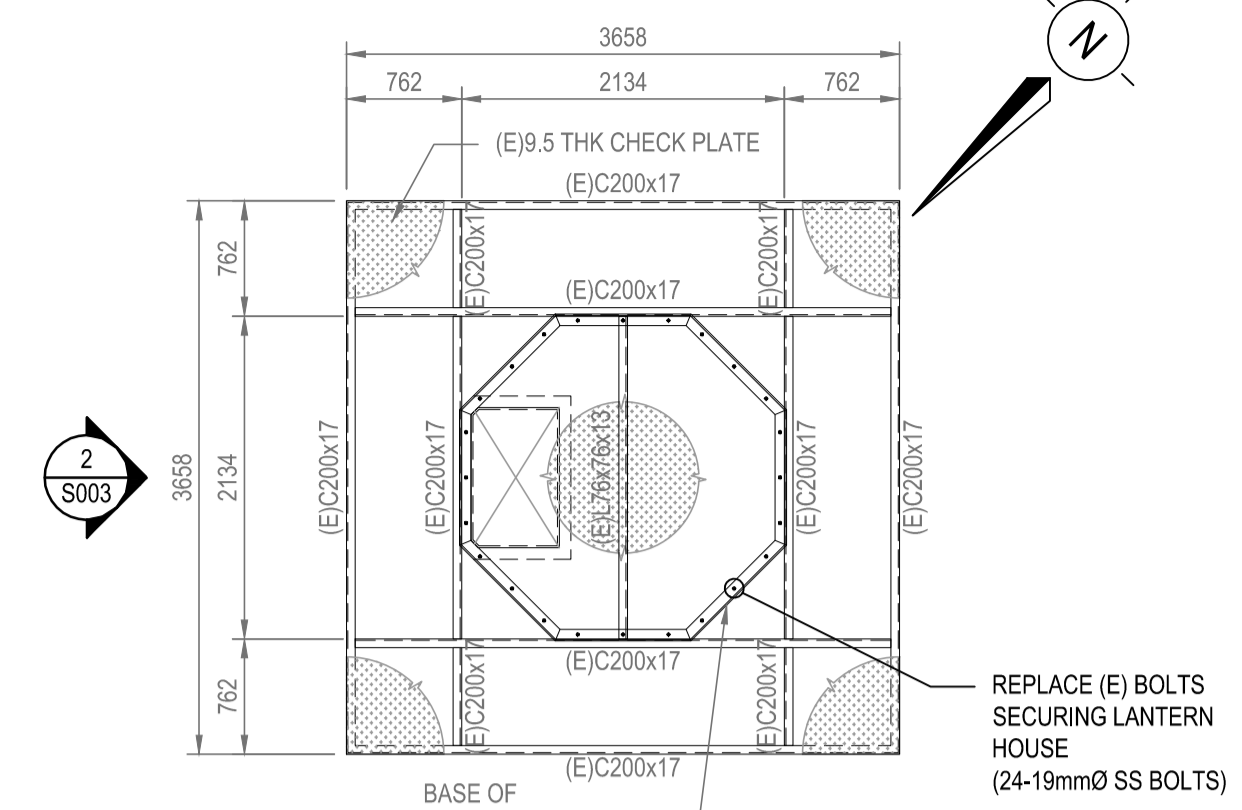
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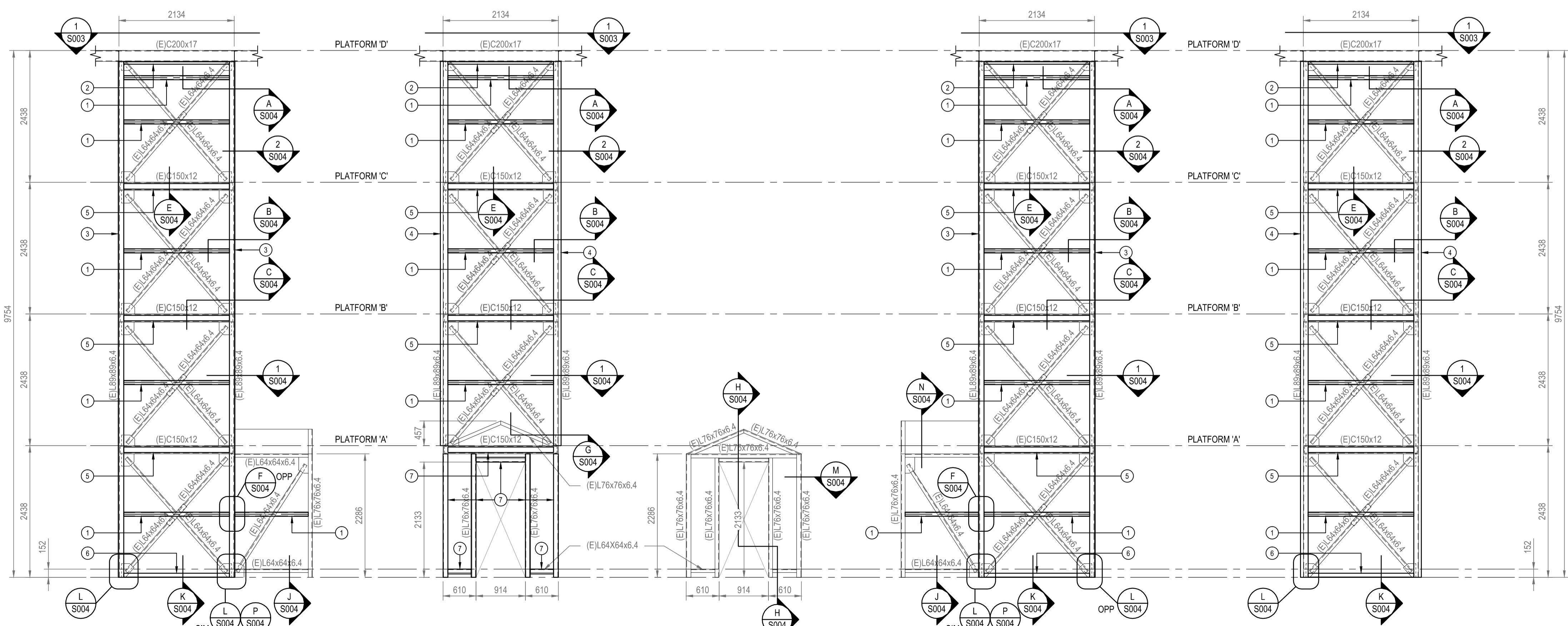
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SCALE: 1:20



B **SECTION**
SCALE: 1:20



1 **BASE OF (E) LANTERN HOUSE**
SCALE: 1:50



3 **NORTHEAST ELEVATION**
SCALE: 1:50

4 **NORTHWEST ELEVATION**
SCALE: 1:50

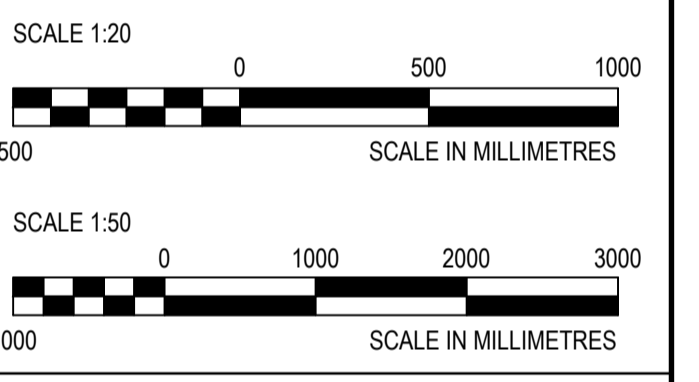
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SCALE: 1:50

6 **SOUTHWEST ELEVATION**
SCALE: 1:50

7 **SOUTHEAST ELEVATION**
SCALE: 1:50

*REPLACE (E) BOLTS ON BRACE (L64x64) AND HORIZONTAL (C150) MEMBERS AS REQUIRED WITH HDG A325 BOLTS TO MATCH EXISTING BOLT SIZE. (ASSUME 19mm (3/4") BOLTS AND 200 BOLTS TO BE REPLACED).

- MEMBER SCHEDULE**
- 1 HSS 76x51x4.8
 - 2 L51x51x1.21mm (GALV)
 - 3 38x102 WOOD NAILER PLATE (PT)
 - 4 38x140 WOOD NAILER PLATE (PT)
 - 5 51x102 WOOD NAILER PLATE (PT)
 - 6 L127x76x6.4 LLH EDGE ANGLE
 - 7 38x89 WOOD NAILER PLATE (PT)



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Client/client
Fisheries and Oceans Canada
25 Huron Street
Victoria, BC

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CAPE BEALE TOWER REFURBISHMENT

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Randall Emery, P. Eng

Designed by/Concepé par
Randall Emery, P. Eng
Drawn by/Dessiné par
ROD MAR/2015.08/04

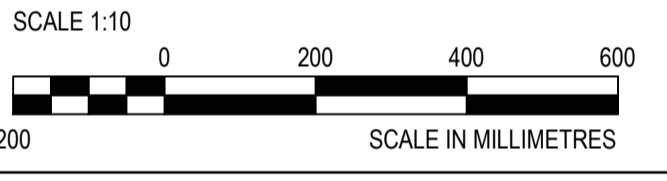
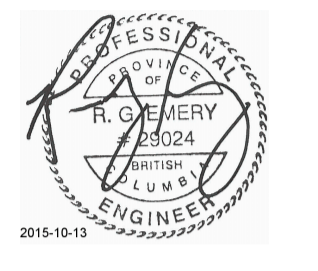
PWGC Project Manager/Administrateur de Projets TPSCC
PWGC, Architectural and Engineering Resources Manager/
Ressources Architectural et de Directeur d'Ingénierie, TPSCC

Client/client
Drawing title/Titre du dessin
**NEW STRUCTURAL FRAMING
CAPE BEALE**

| | | |
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| Project No./No. du projet F1700-150861 CC Drawing No./No. du dessin 10247 | Sheet/Feuille S003 3 OF 5 | Revision no./ La Révision no. 1 |
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25 Huron Street Victoria, BC

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Approved by/Approuvé par: RANDALL EMERY, P. ENG

Designed by/Conçu par: RANDALL EMERY, P. ENG

Drawn by/Dessiné par: ROD MAR/2015.08/04

PWGSC Project Manager/Administrateur de Projets TPSGC

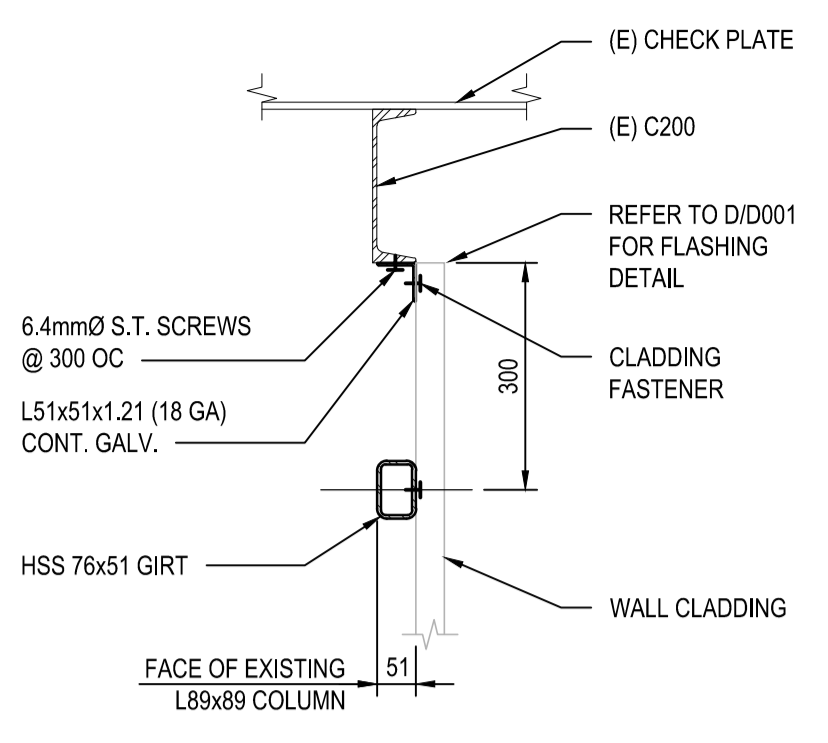
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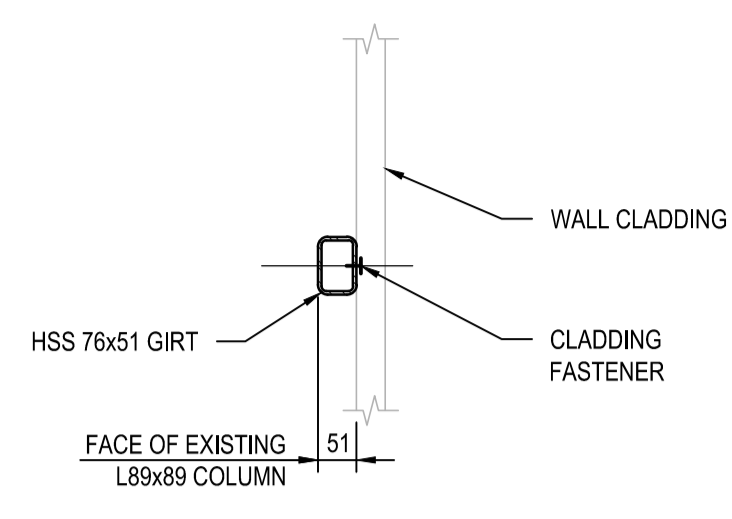
Drawing title/Titre du dessin: STRUCTURAL SECTIONS & DETAILS CAPE BEALE

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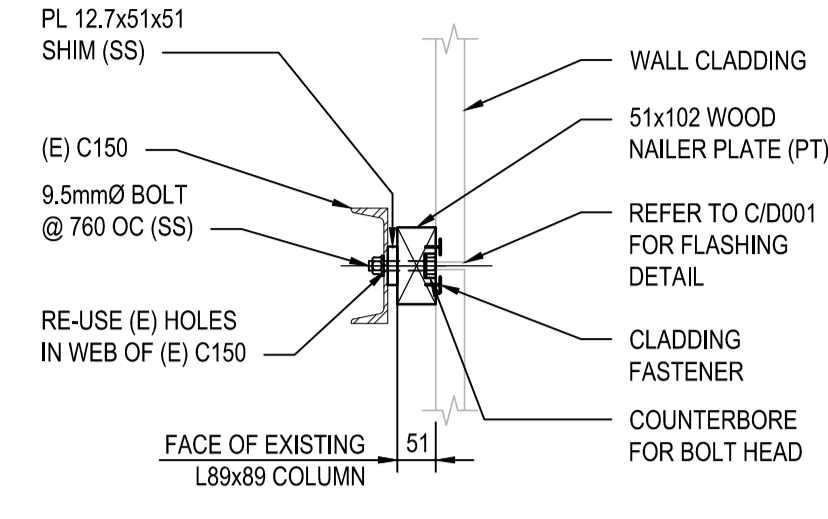
Sheet/Feuille: S004
4 OF 5
Revision no./La Révision no.: 1



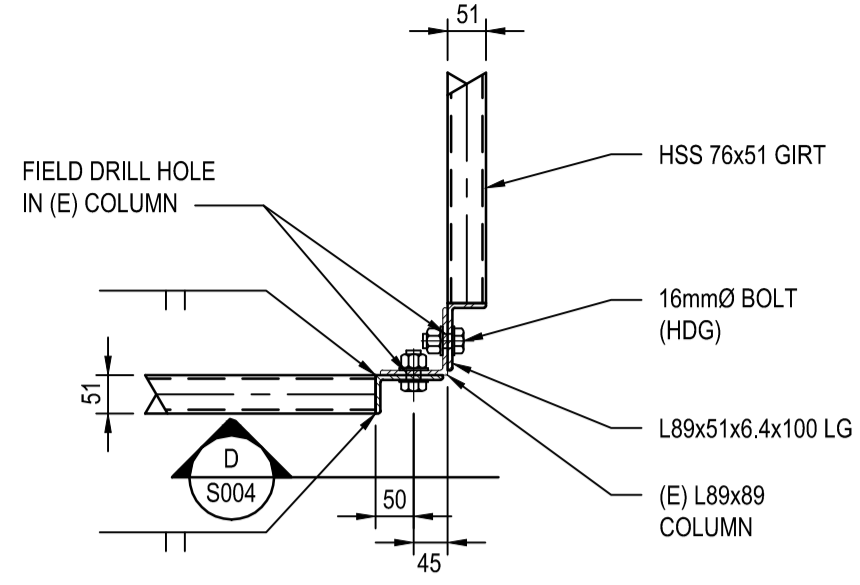
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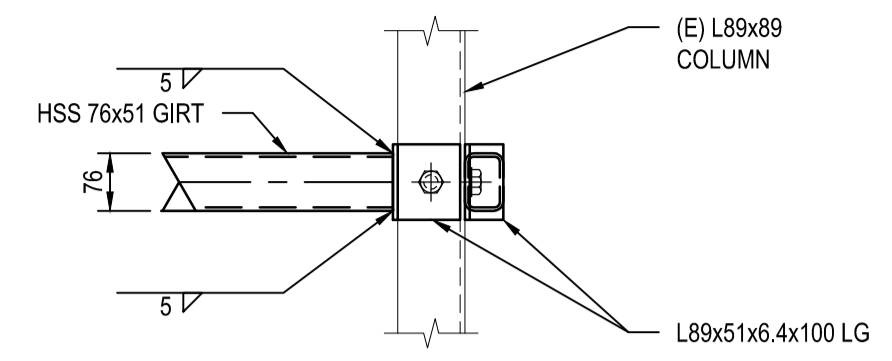
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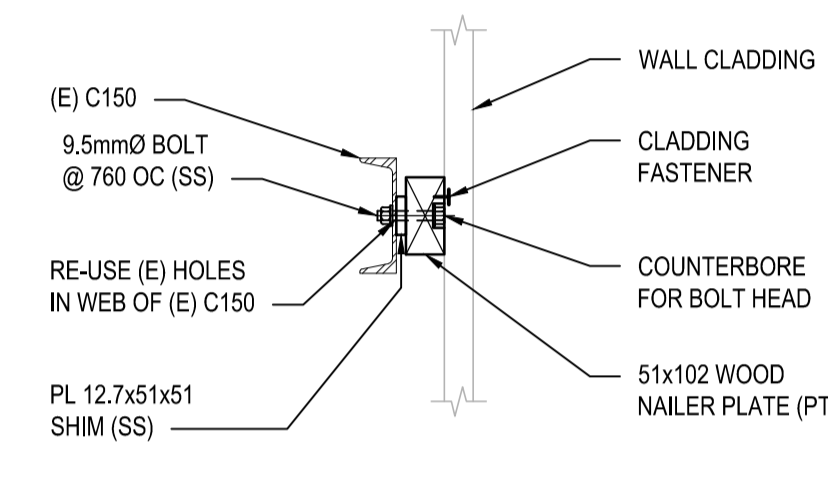
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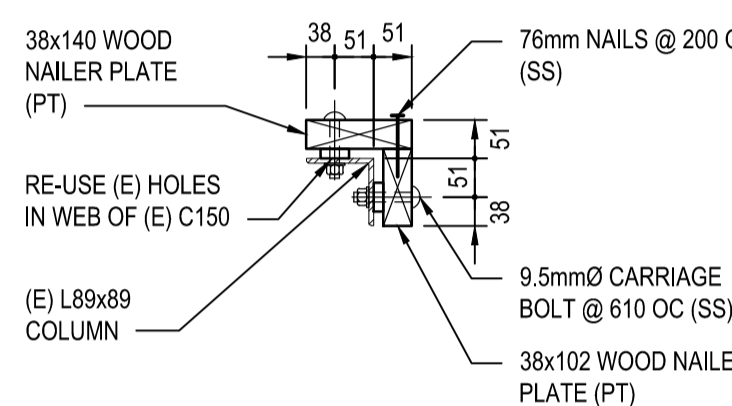
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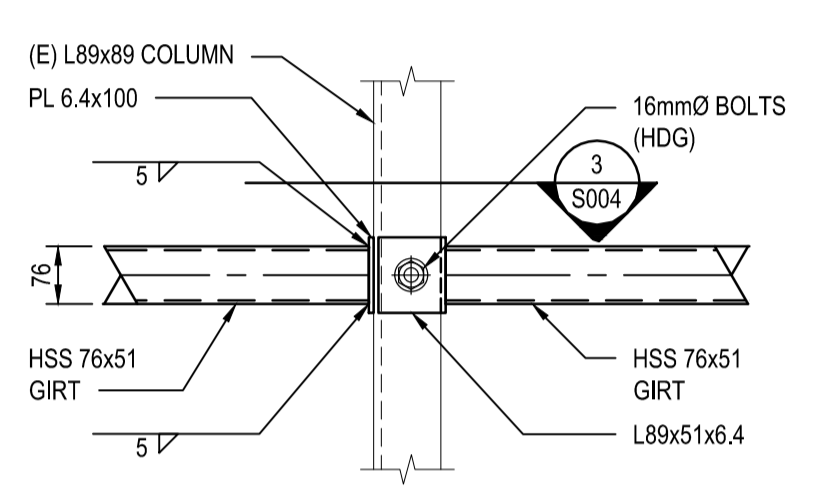
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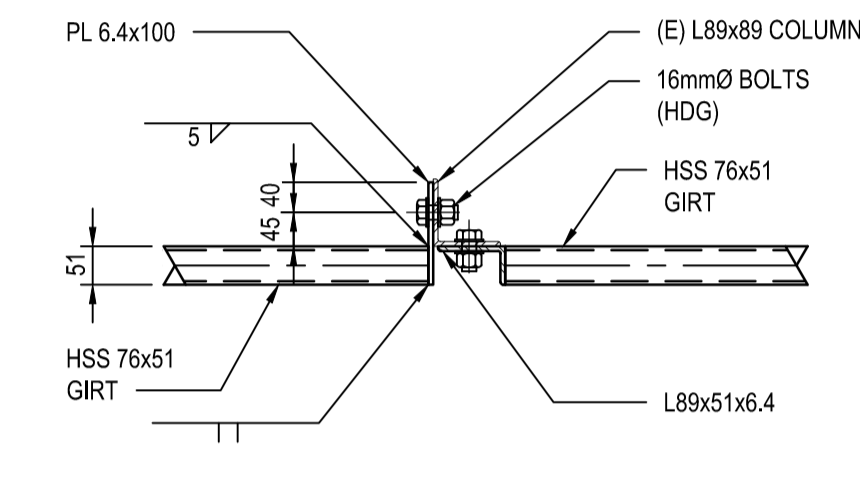
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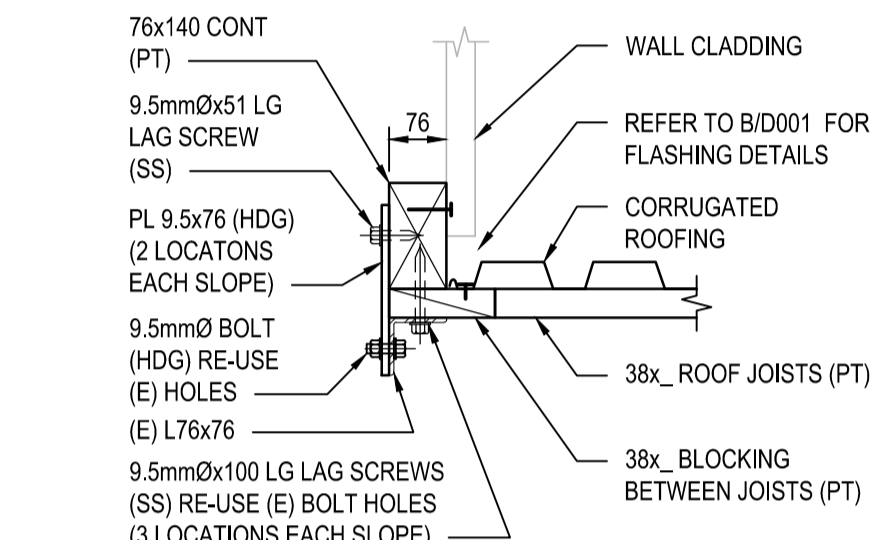
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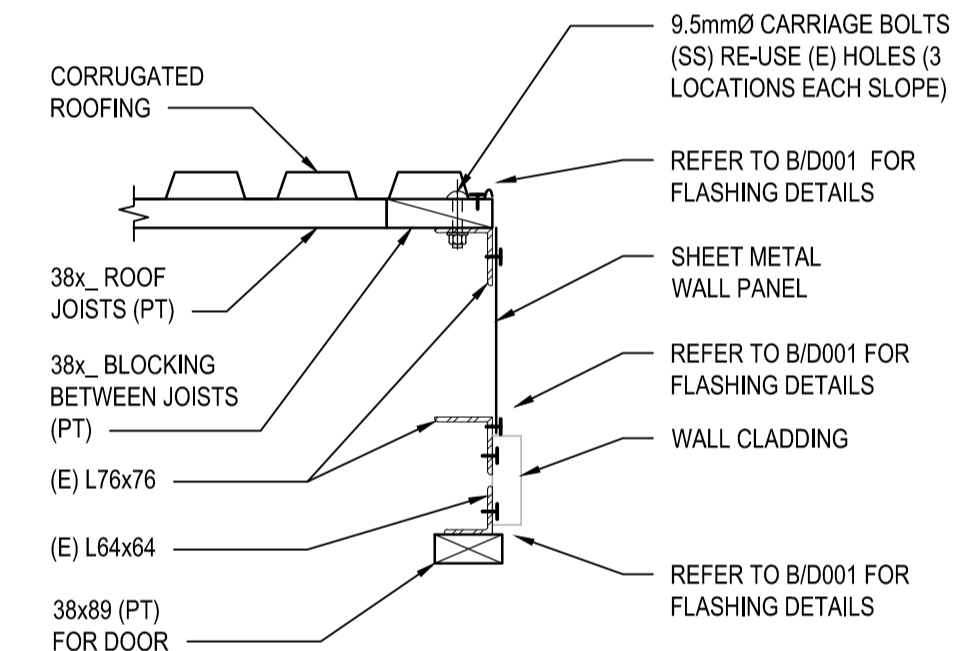
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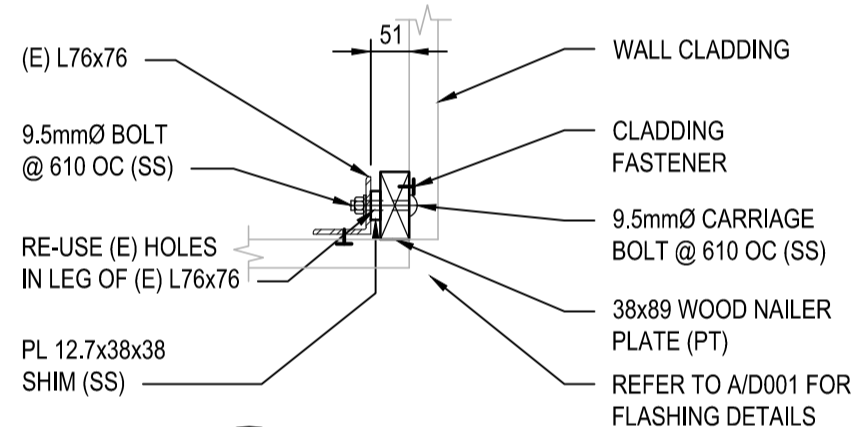
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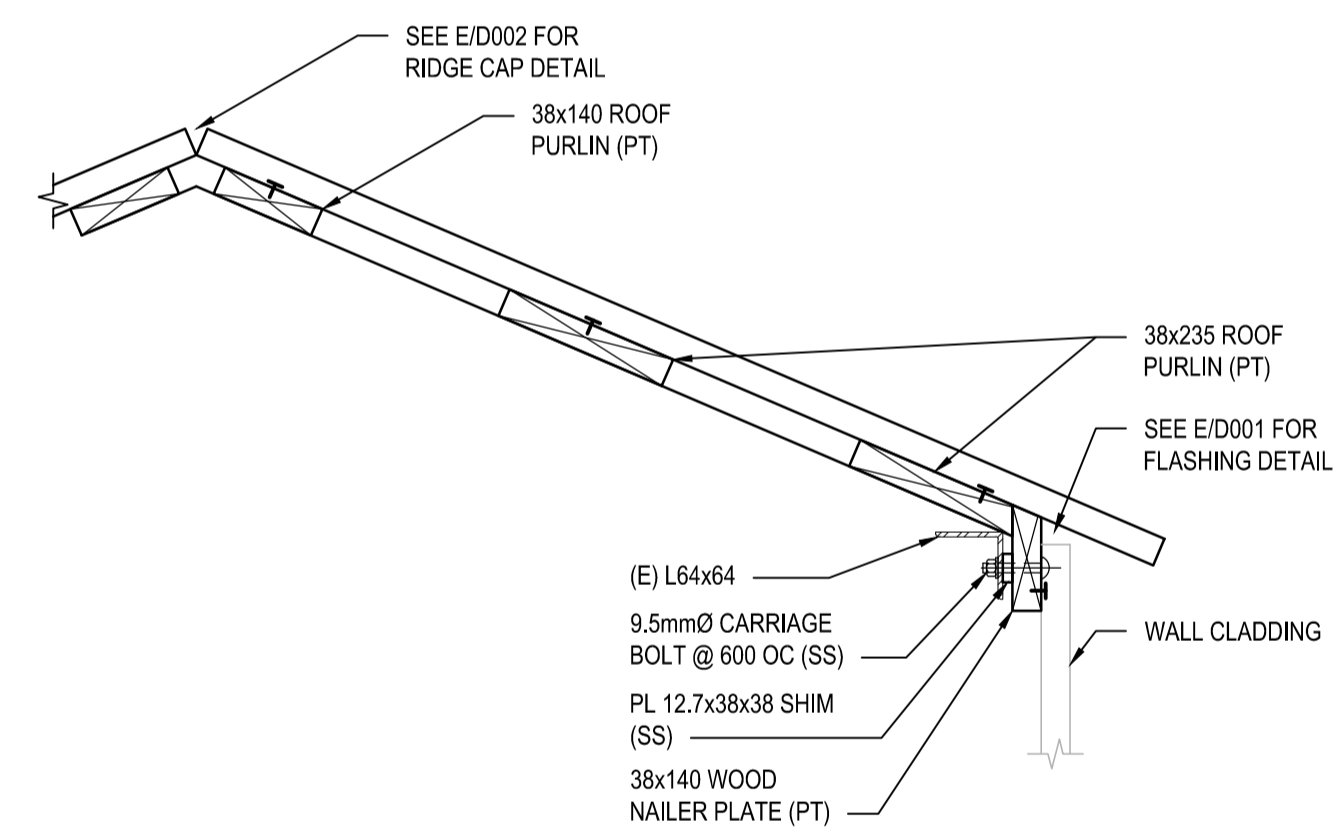
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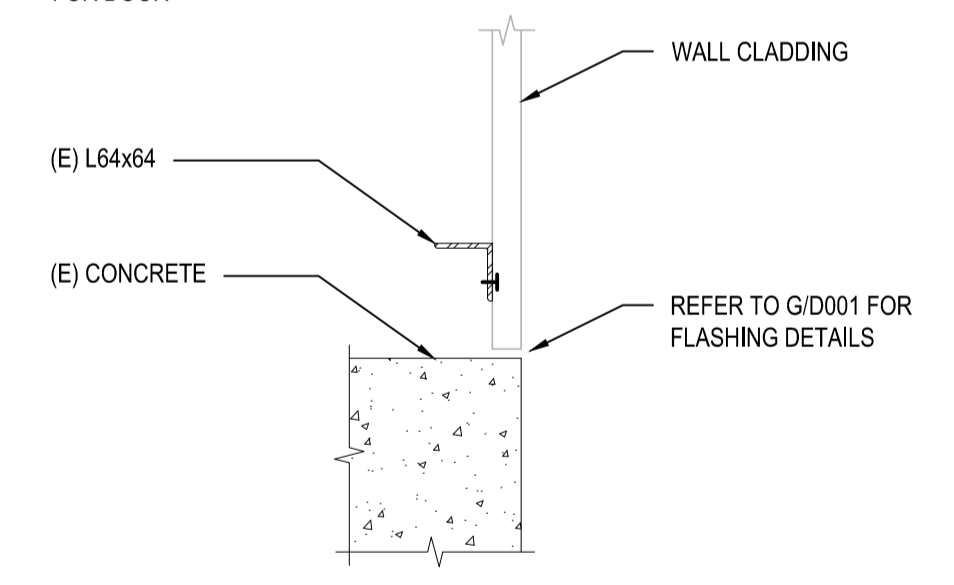
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S003 SCALE: 1:10



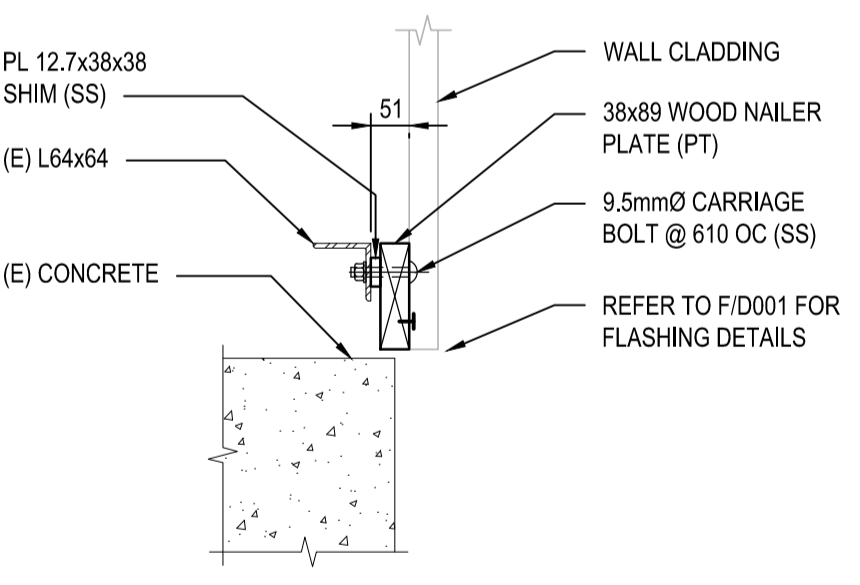
I SECTION
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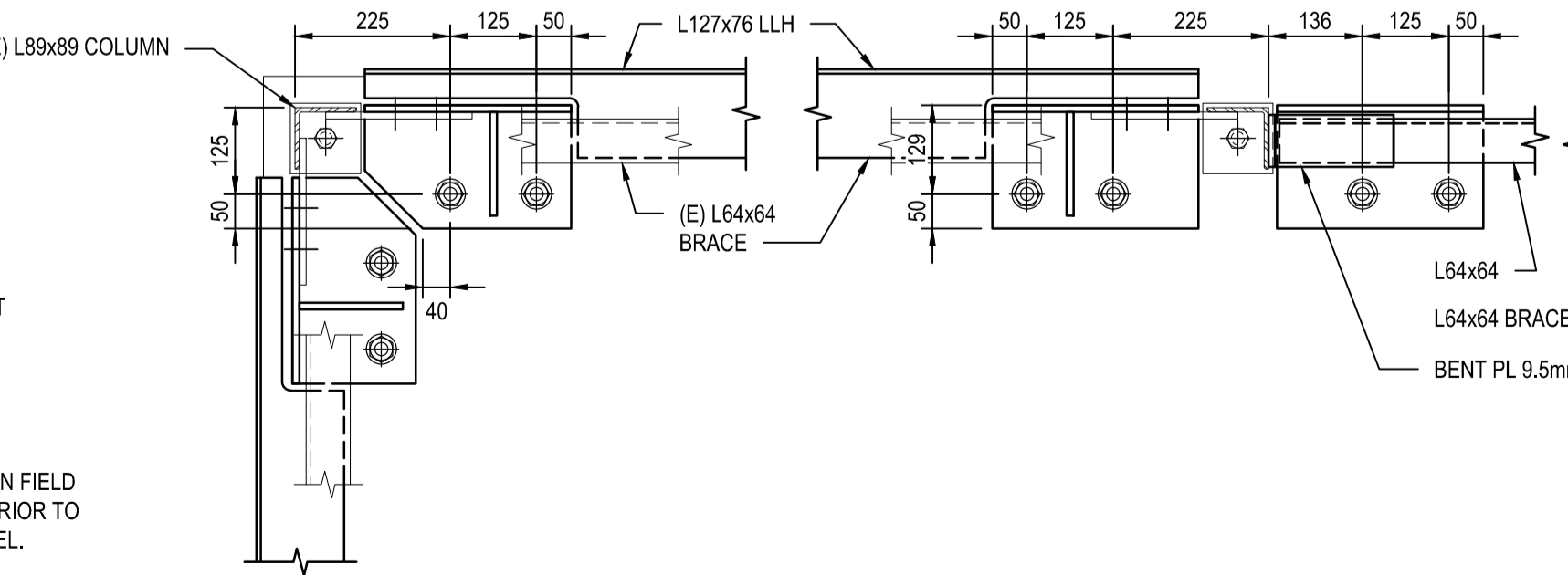
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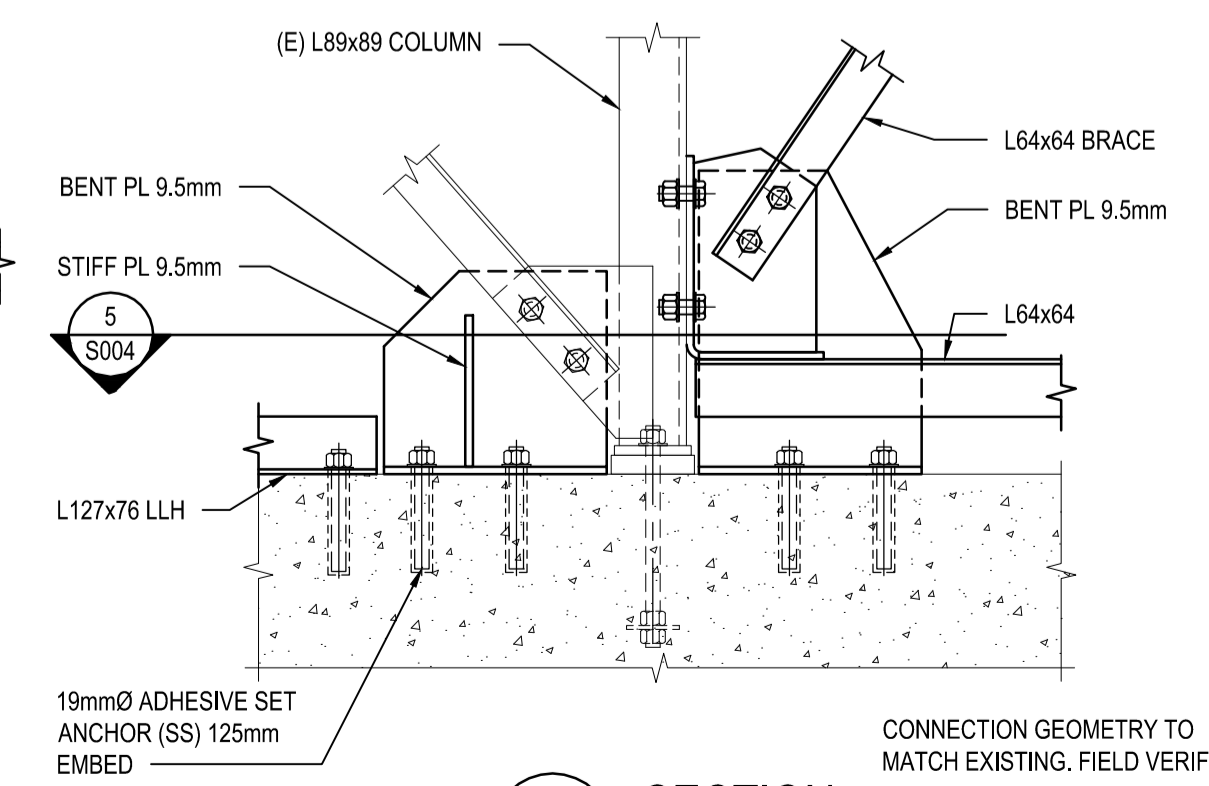
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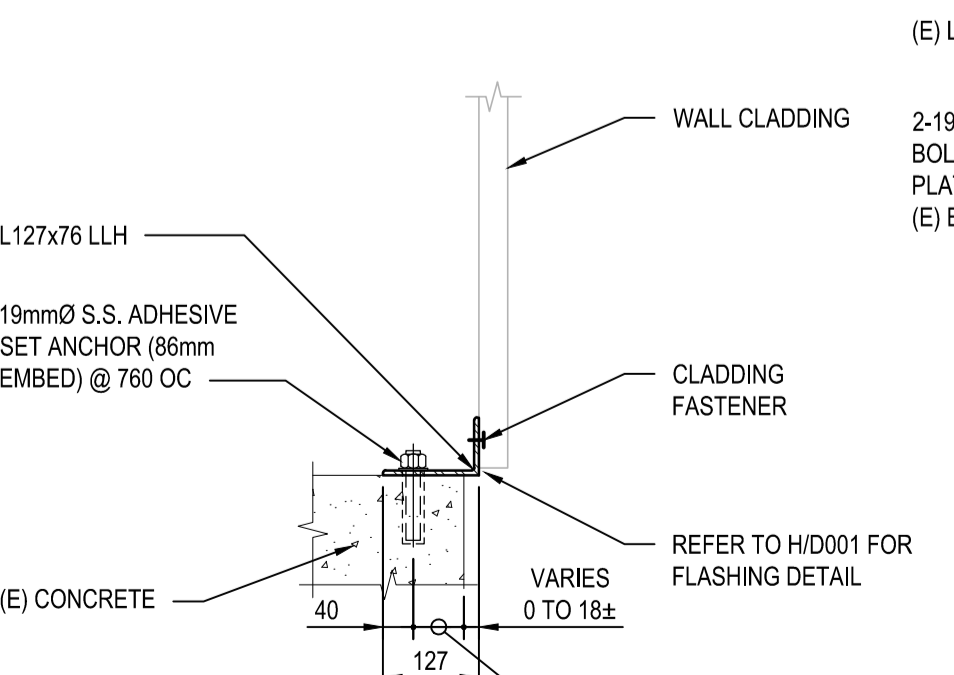
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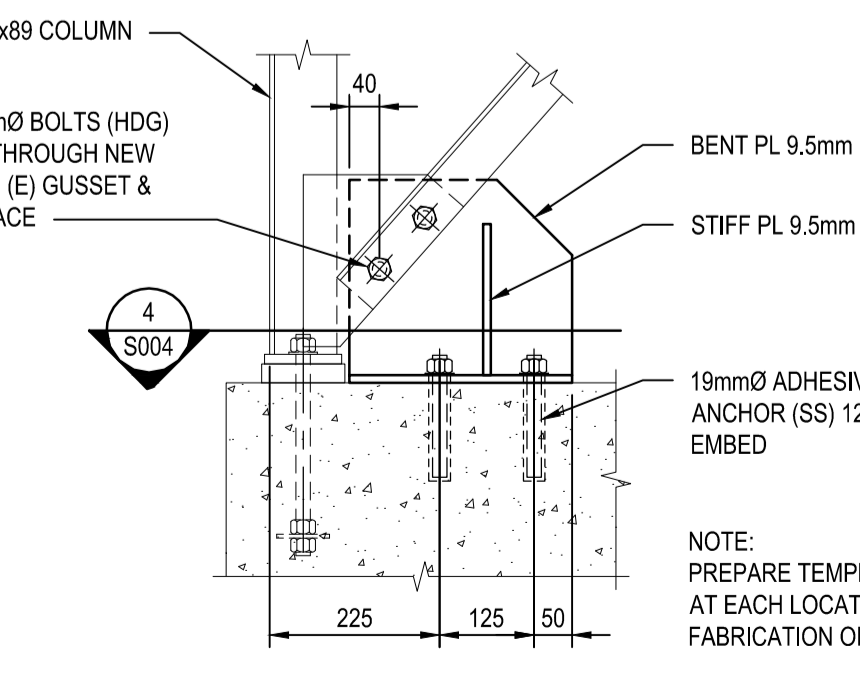
4 DETAIL
S004 SCALE: 1:10



M SECTION
S003 SCALE: 1:10



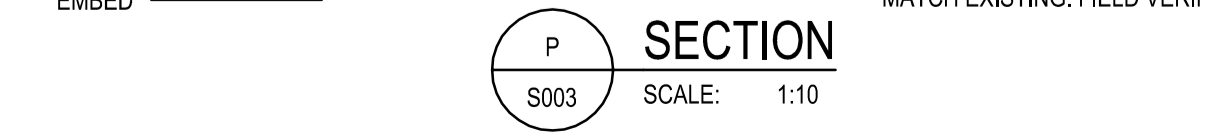
N SECTION
S003 SCALE: 1:10



O SECTION
S003 SCALE: 1:10

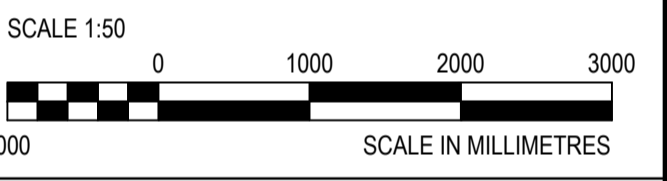
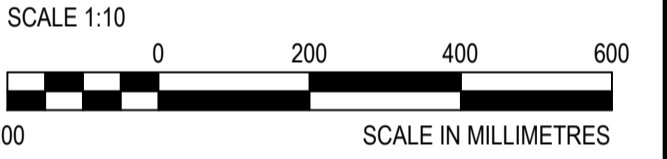
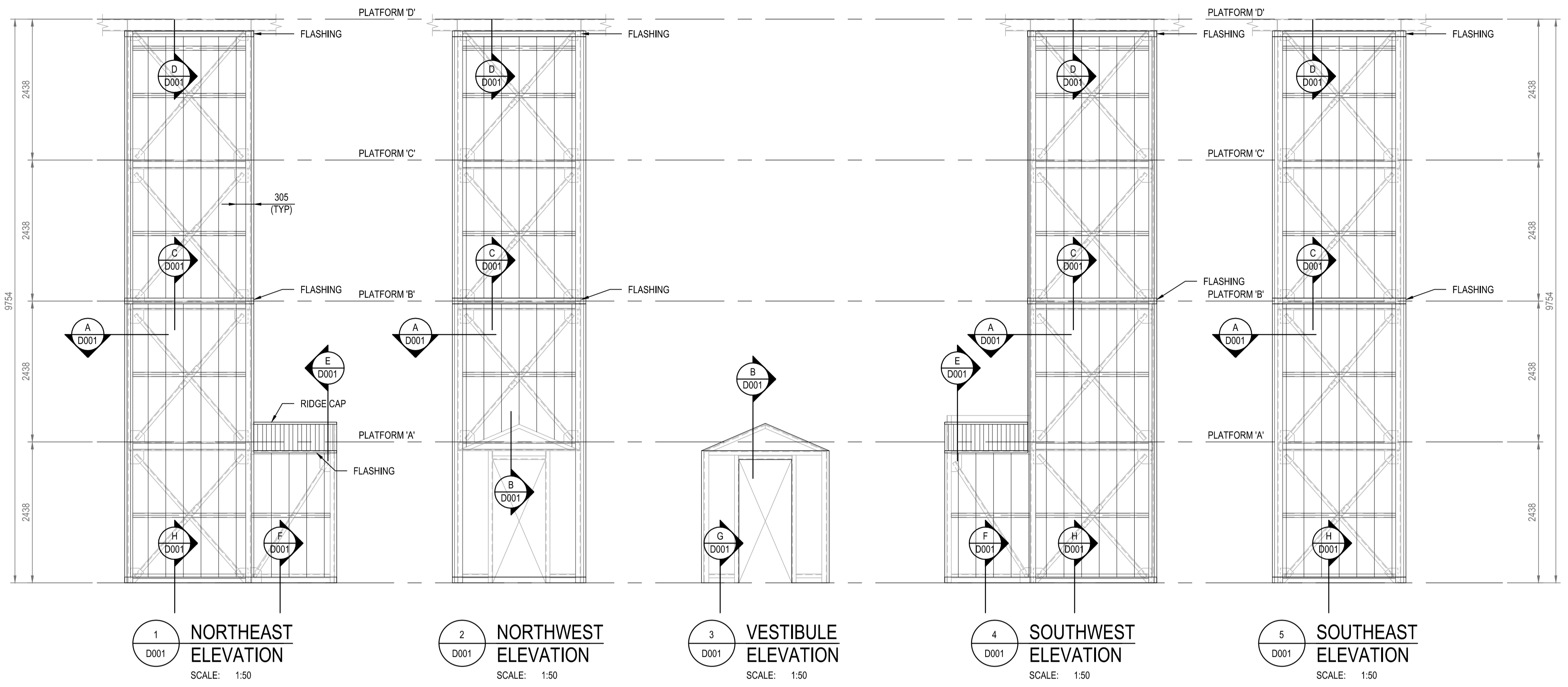


5 DETAIL
S004 SCALE: 1:10



P SECTION
S003 SCALE: 1:10





DO NOT SCALE DRAWINGS

| Revision/ | Description/Description | Date/Date |
|-----------|---------------------------|------------|
| 5 | | |
| 4 | | |
| 3 | | |
| 2 | | |
| 1 | ISSUED FOR TENDER | 10/09/2015 |
| 0 | 90% SUBMISSION FOR REVIEW | 08/26/2015 |

Client/client

Fisheries and Oceans Canada

25 Huron Street
Victoria, BC

Project title/Titre du projet

CAPE BEALE TOWER REFURBISHMENT

Approved by/Approuvé par

Designed by/Concept par
GREG OVSTAAS, P. ENG

Drawn by/Dessiné par
ROD MAR/2015.08/04

PWGSC Project Manager/Administrateur de Projets TP/SGC

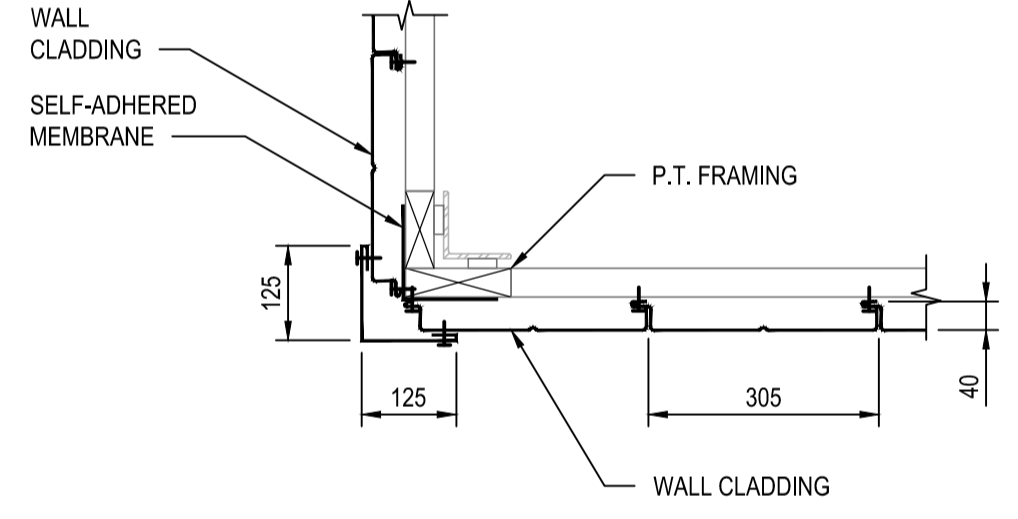
PWGSC, Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'Ingénierie, TP/SGC

Client/client

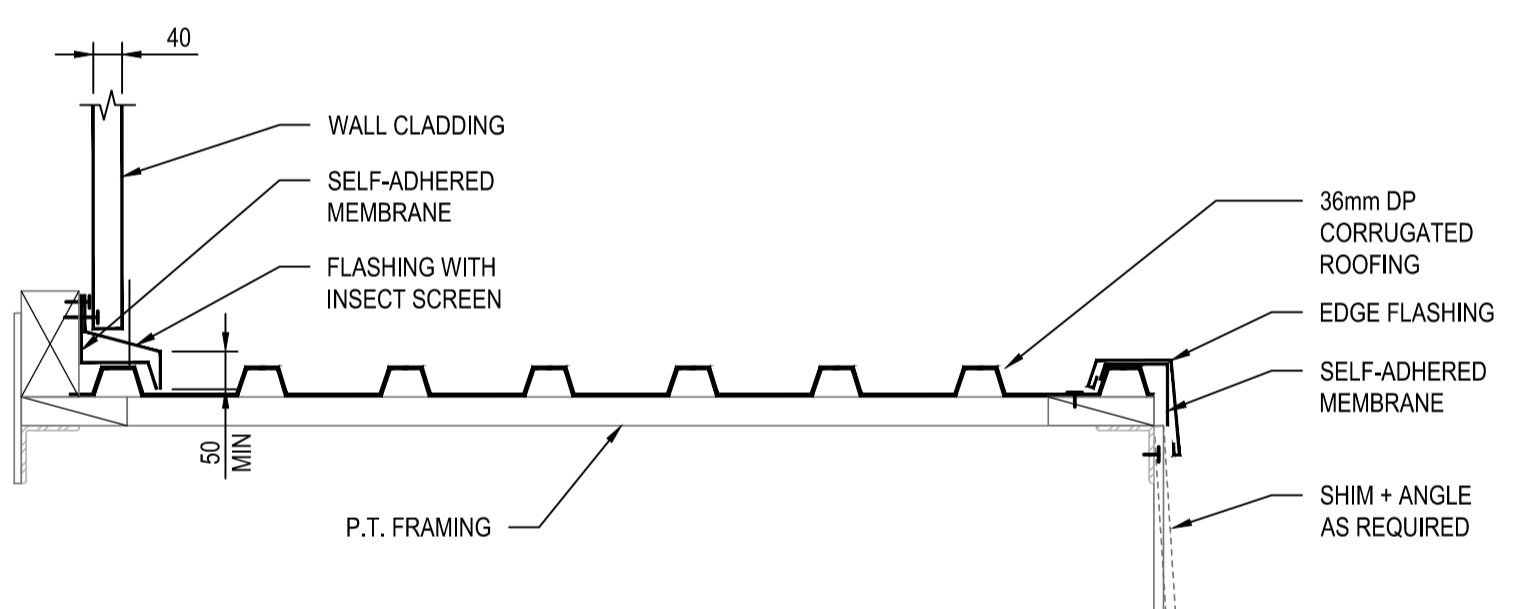
Drawing title/Titre du dessin

BUILDING ENVELOPE ELEVATIONS & SECTIONS CAPE BEALE

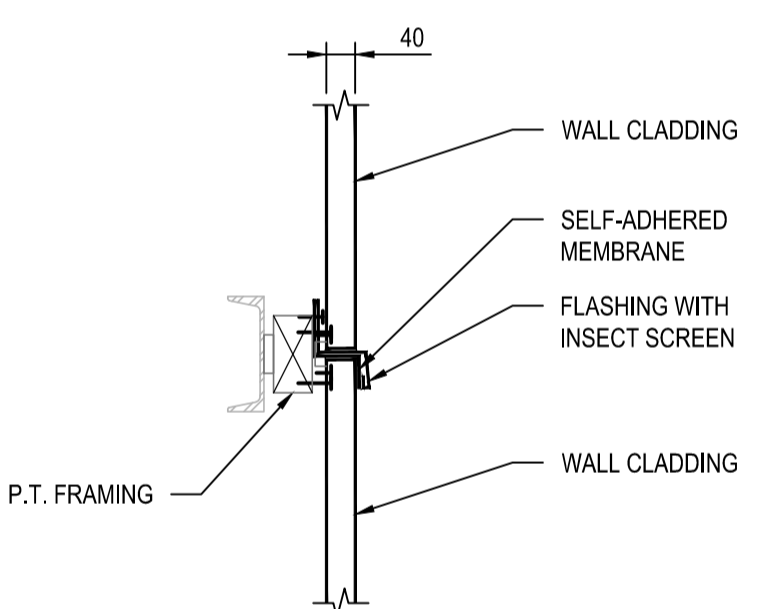
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|---|--|--|
| Project No./No. du projet F1700-150861 CGG Drawing No./No. du dessin 10247 | Sheet/Feuille D001 5 OF 5 | Revision no./La Révision no. 1 |
|---|--|--|



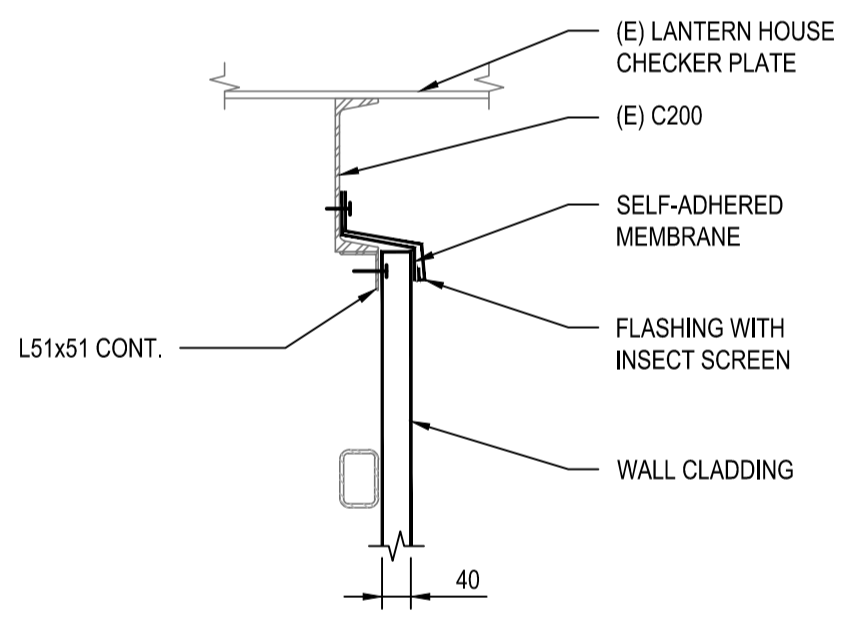
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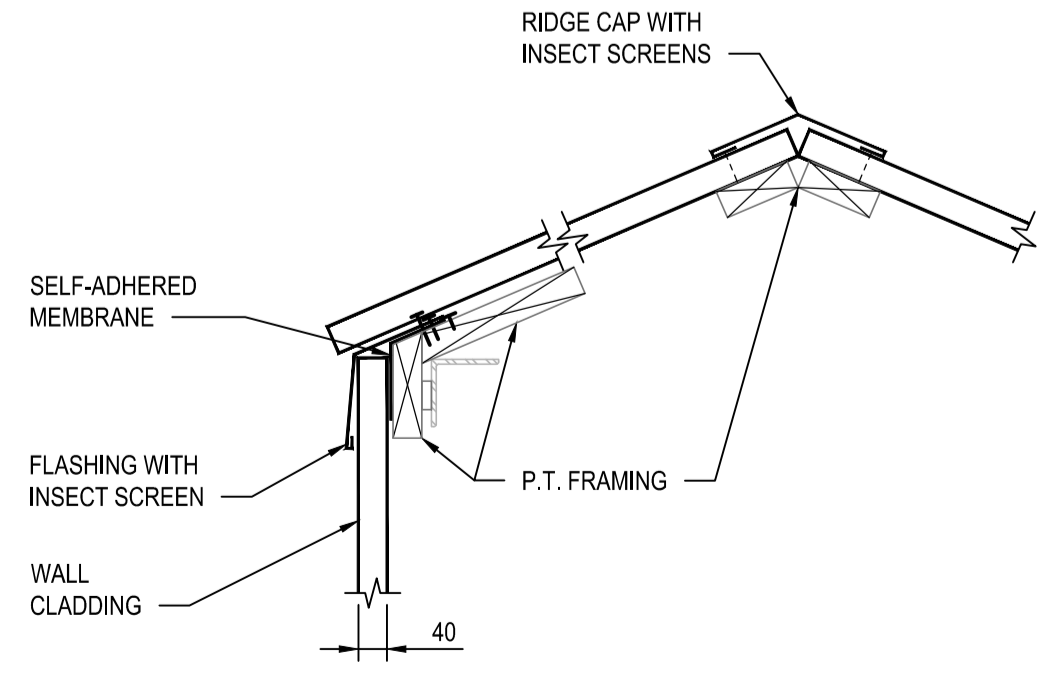
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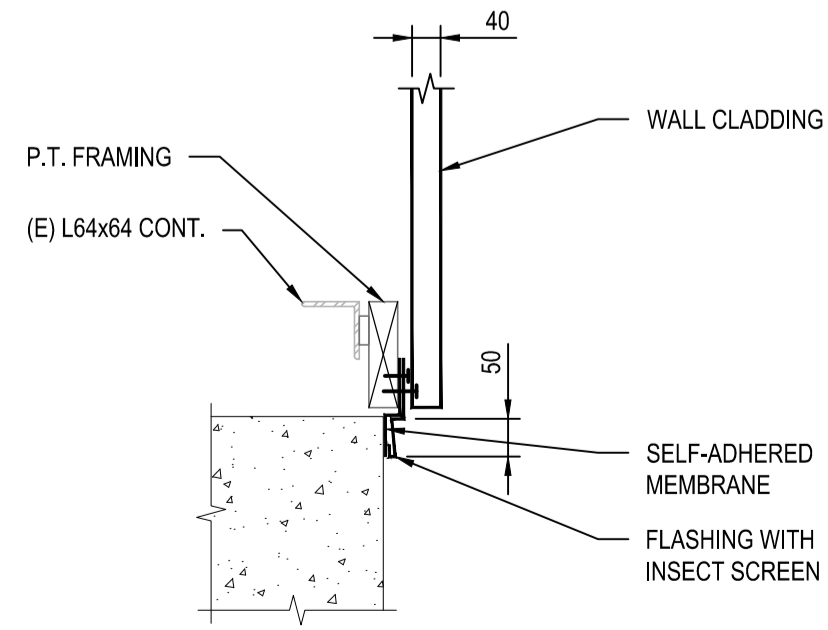
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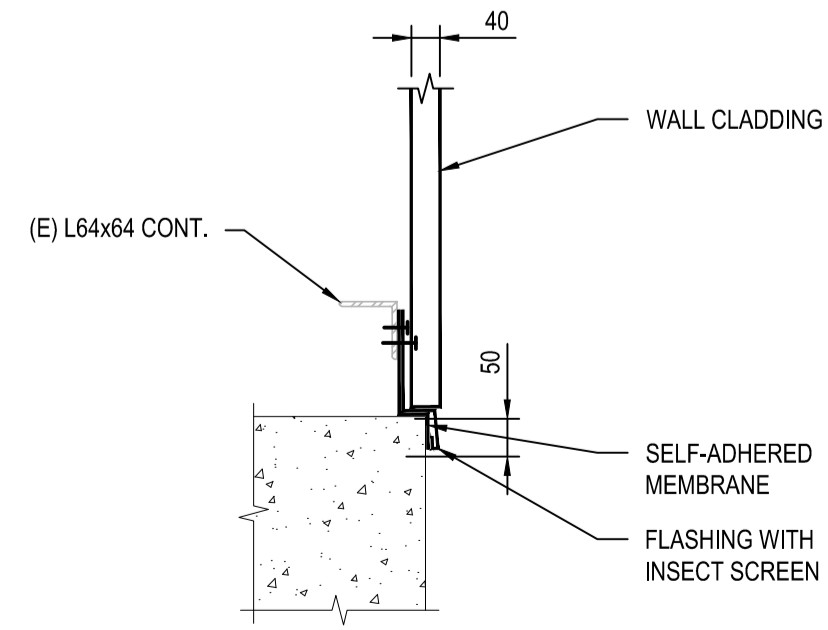
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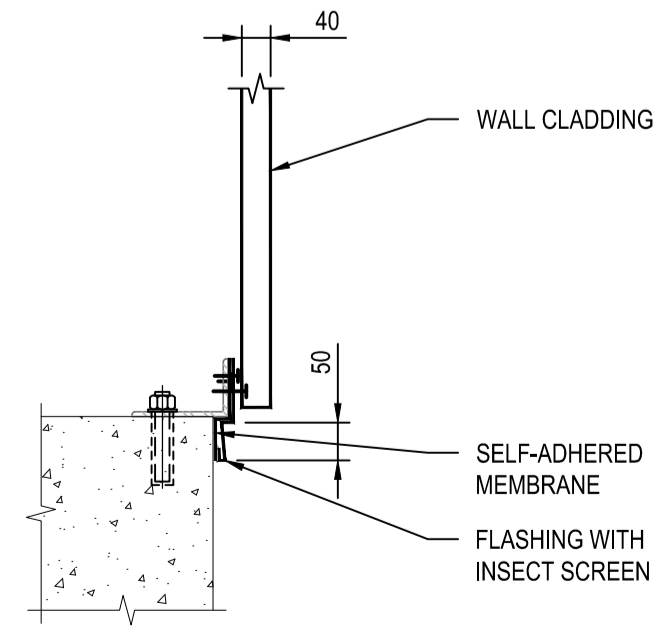
E SECTION
D001 SCALE: 1:10



F SECTION
D001 SCALE: 1:10



G SECTION
D001 SCALE: 1:10



H SECTION
D001 SCALE: 1:10