Government of Canada | Gouvernement du Canada

# NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

## NIAGARA-ON-THE-LAKE, ONTARIO
## GOVERNMENT OF CANADA

## Proj. No.: 201405776

Canada

## ISSUED FOR TENDER / SPA
## SEPTEMBER 29, 2014


ARCHITECTURAL

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ELECTRICAL

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CIVIL

MTE
1016A Sutton Drive, Burlington, ON L7L 6B8
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Site Development Division

LANDSCAPE

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Kitchener-Waterloo Office
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## DRAWING LIST


ARCHITECTURAL

A0.00 DRAWING LIST

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A1.02 SITE PLAN - HELIPORT ENLARGED
A1.03 SITE DETAILS - HELIPORT
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ELECTRICAL

E1-01 ELECTRICAL SITE PLAN

CIVIL

C2.1 SITE GRADING PLAN
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C2.5 SITE SERVICING AND GRADING PLAN

LANDSCAPE

L-1 LANDSCAPE PLAN
L-2 LANDSCAPE DETAILS AND NOTES
L-3 LANDSCAPE DETAILS AND NOTES



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| Project Number: | 201405776 |
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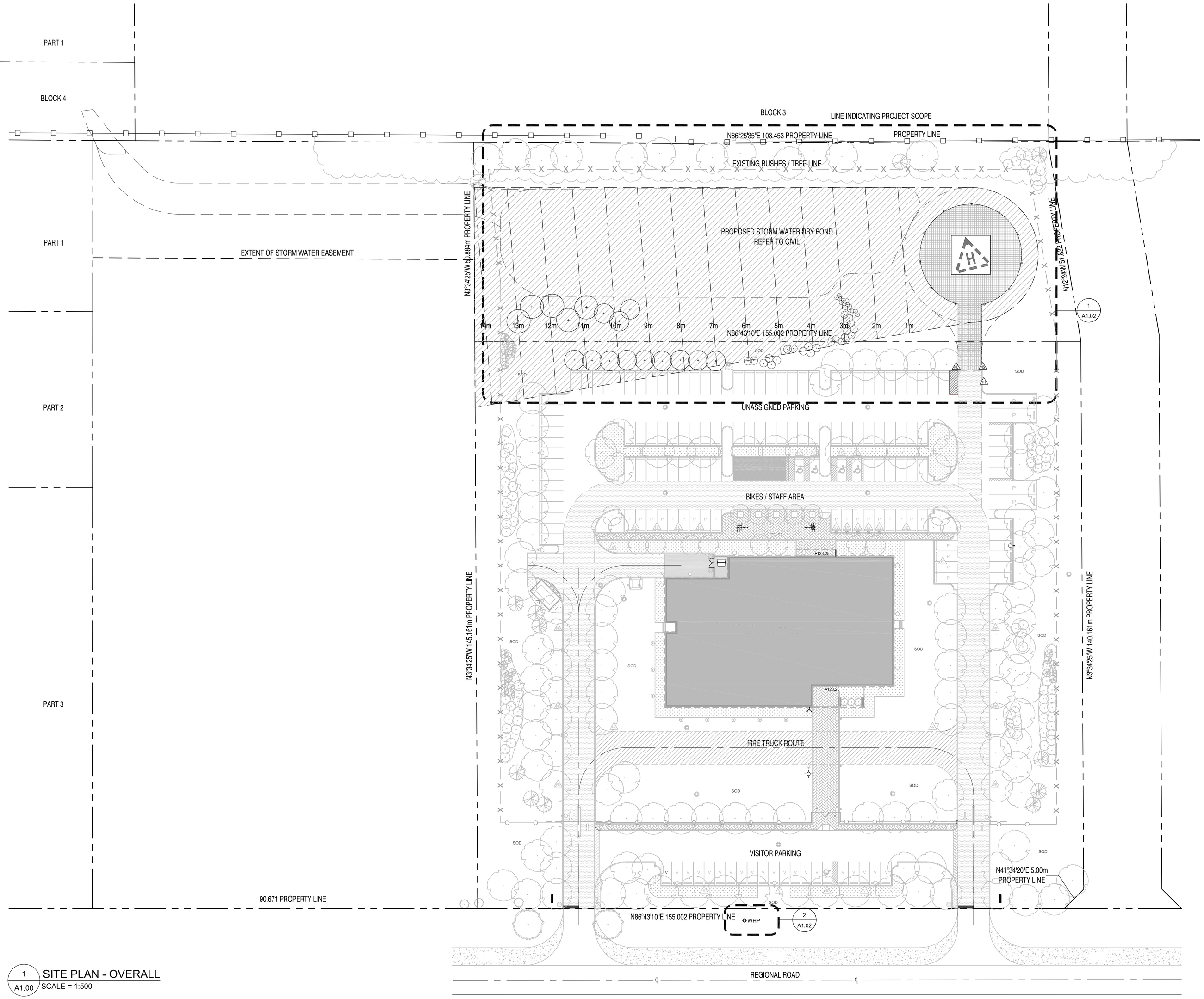


1 / A1.00 SITE PLAN - OVERALL
SCALE = 1:500

## SITE INFORMATION & STATISTICS

GEOGRAPHIC LOCATION:
TOWN OF NIAGARA-ON-THE-LAKE
REGIONAL MUNICIPALITY OF NIAGARA

SITE AREA:
PART 1: 2.176 HECTARES (5.377 ACRES)
PART 2: 0.657 HECTARES (1.625 ACRES)
TOTAL = 2.833 HECTARES (7.002 ACRES)

SITE DIMENSIONS:
LOT FRONTAGE = 155.002m
LOT DEPTH = 196.037m

PRESENT USE OF LAND:
AGRICULTURAL

PROPOSED USE:
COMMERCIAL - OFFICE

BUILDING COVERAGE / FOOTPRINT:
2,057m²

PARKING COVERAGE:
7,355.2m²

GROSS FLOOR AREA:
(MEASURED FROM OUTSIDE WALLS)
3,641m²

BUILDING HEIGHT:
11.1m - TWO STORIES

PARKING REQUIRED:
PARKING REQUIREMENTS AS PER COMPREHENSIVE ZONING BY-LAW 4316-09

MINIMUM VEHICLE PARKING (6.39, TABLE 6-4)
OFFICE = 1 STALL / 28m² GFA
REQUIRED VEHICLE PARKING = 130 STALLS

MINIMUM ACCESSIBLE STALLS (6.42, TABLE 6-8)
REQUIRED ACCESSIBLE STALLS = 5 OF TOTAL

MINIMUM BICYCLE PARKING (6.41, TABLE 6-7)
OFFICE = 1 STALL / 250m²
REQUIRED BICYCLE PARKING = 15 STALLS

MINIMUM LOADING STALLS (6.31, TABLE 6-2)
REQUIRED LOADING STALLS = 2

PARKING PROVIDED:
- 121 STAFF PARKING STALLS
- 4 ACCESSIBLE STAFF PARKING STALLS
- 4 LARGE VEHICLE PARKING STALLS
- 22 BICYCLE PARKING STALLS
- 20 VISITOR PARKING STALLS
- 1 ACCESSIBLE VISITOR PARKING STALL

TOTALS:
VEHICLE PARKING STALLS = 150
MOTORCYCLE PARKING STALLS = 9
BICYCLE PARKING STALLS = 22
LOADING STALLS = 2

## OVERALL SITE PLAN GENERAL NOTES

1. REFER TO LANDSCAPE PLANS FOR RELATED INFORMATION & SITE STATISTICS.
2. REFER TO DRAWING 1/A1.02 FOR ENLARGED SITE PLAN OF PROPOSED DEVELOPMENT.

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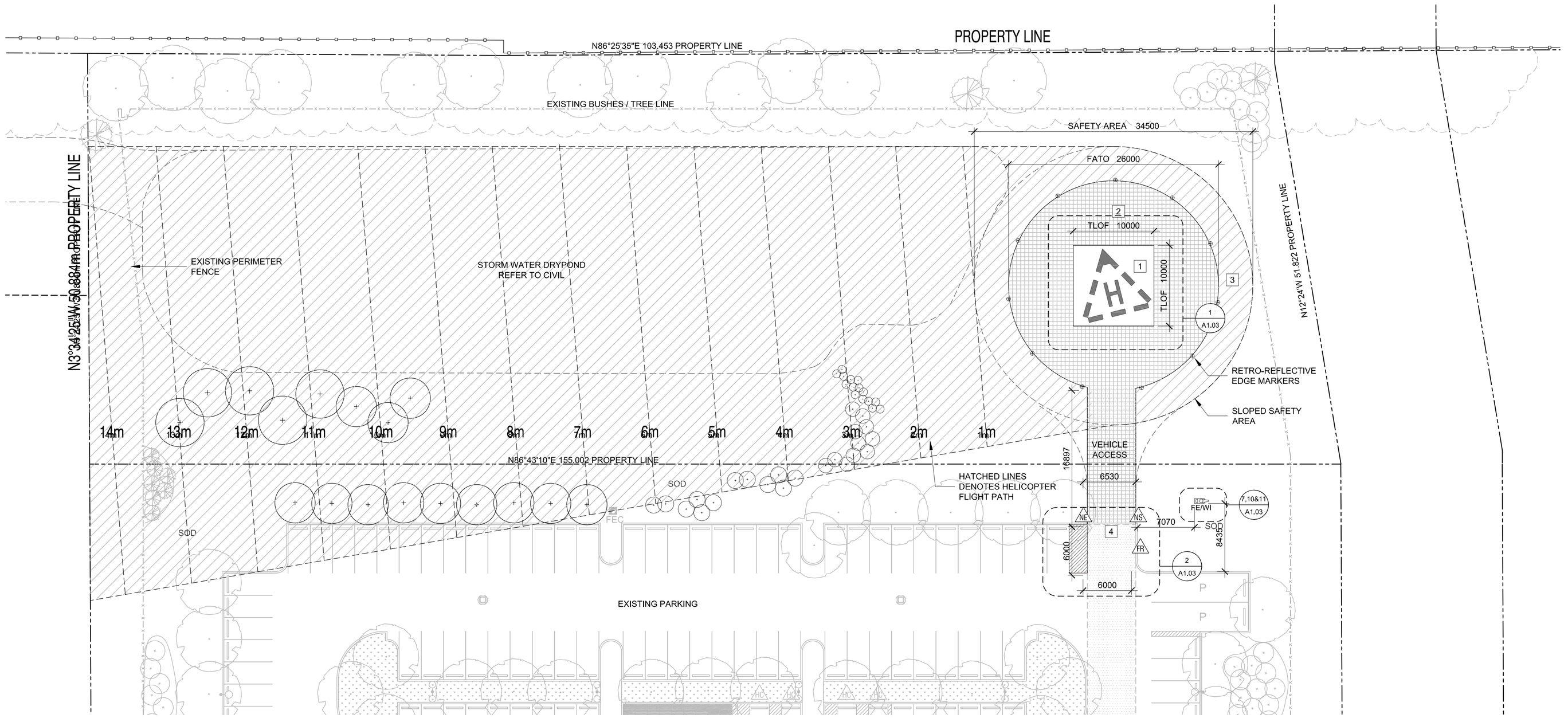
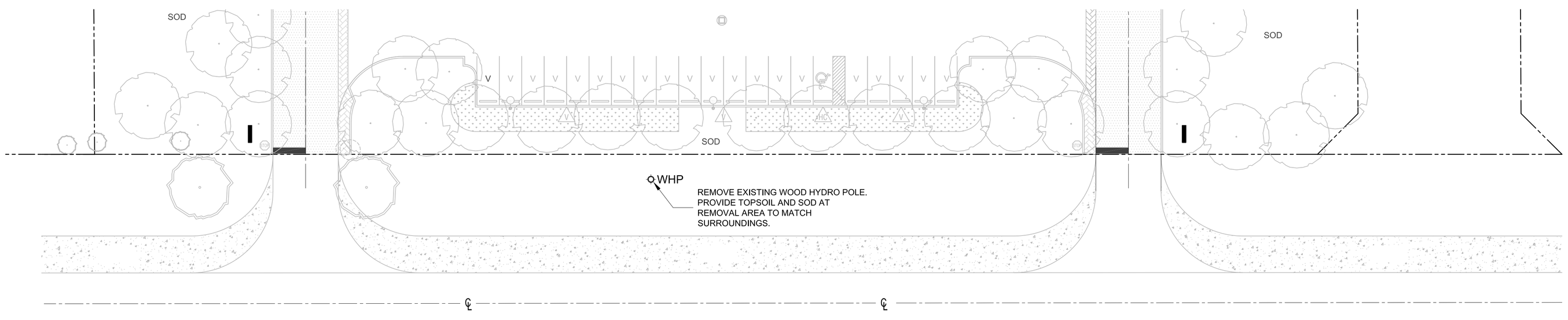
| Drawn By: | WW |
| Checked By: | |

Drawing Title:
SITE PLAN - OVERALL SITE

Drawing:
A1.00




1 A1.02 PART SITE PLAN
SCALE = 1:300




2 A1.02 PART SITE PLAN
SCALE = 1:300

## SITE PLAN GENERAL NOTES

1. ALL DIMENSIONS ARE TO FACE OF BUILDING FOUNDATION U.N.O.
2. ALL DIMS. ARE TO FACE OF CURB U.N.O.
3. ALL CURBS TO BE MONOLITHIC CONSTRUCTION. REFER TO DRAWING 2/A1.03 FOR DETAIL.
4. DRIVEWAY, DRIVE AISLES & PARKING STALLS TO BE ASPHALT PAVING U.N.O.
5. REFER TO CONSULTANT DRAWINGS FOR ADDITIONAL RELATED INFORMATION.

## SITE PLAN CODE LEGEND

1 CONCRETE TLOF WITH PAINTED MARKINGS POINTING MAGNETIC NORTH

2 FATO SURFACE WITH GRASSPAVE PERMEABLE PAVING

3 EXTENTS OF SAFETY AREA - SOD

4 MOUNTABLE CURB FOR VEHICLE ACCESS. REFER TO CIVIL DRAWINGS.

## SITE PLAN SYMBOL LEGEND

PROPERTY LINE

— x — PERIMETER FENCE. REFER TO 1/A1.03.

INDICATES HELICOPTER FLIGHT PATH

INDICATES FATO SURFACE WITH GRASS PAVE. REFER TO LANDSCAPE.

FE/WI FIRE EXTINGUISHER & WIND DIRECTION INDICATOR ON CONCRETE BASE. REFER TO 7, 10, 11, 12/A1.03

NE NO ENTRY / DO NOT BLOCK DRIVEWAY SIGN. REFER TO 3/A1.03.

FR FIRE ROUTE / NO PARKING SIGN. REFER TO 4/A1.03.

NS HELICOPTER LANDING / NO SMOKING SIGN. REFER TO 5/A1.03.

RETRO-REFLECTIVE EDGE MARKER

WHP EXISTING WOOD HYDRO POLE

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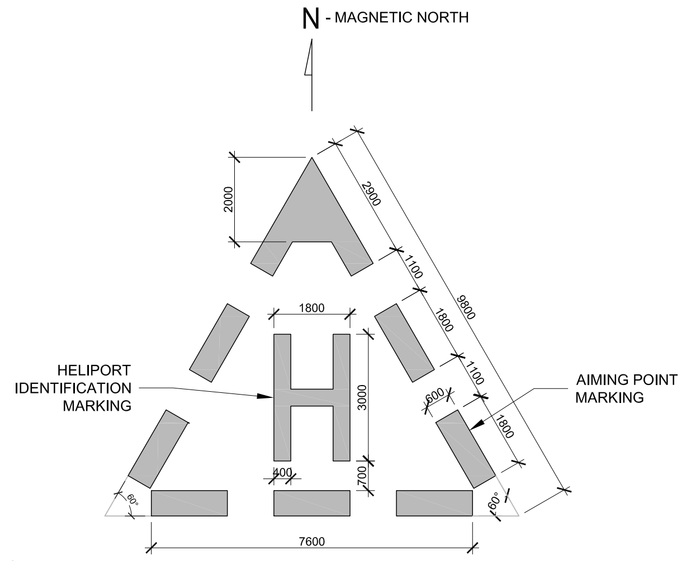
Drawing Title:
SITE PLAN - HELIPORT ENLARGED

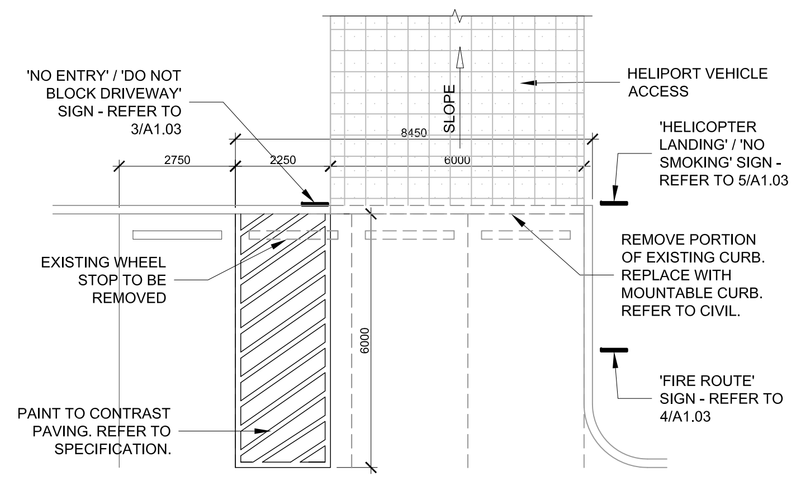
Drawing:
A1.02




NOTE:
THE TRIANGLE, LETTER 'H' AND FATO BOUNDARY MARKINGS ARE WHITE AND EDGED WITH A 15cm BLACK BORDER TO IMPROVE CONTRAST

THE AIMING POINT MARKING SHALL BE ALIGNED WITH THE MAGNETIC NORTH EXCEPT IN AREAS OF COMPASS UNRELIABILITY WHERE IT SHALL BE ORIENTED WITH THE TRUE NORTH.

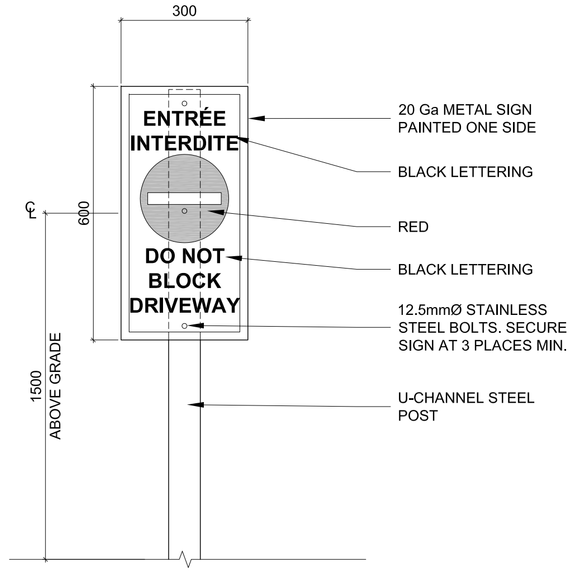
1 A1.03 HELIPORT IDENTIFICATION & AIMING POINT MARKING
SCALE = 1:100



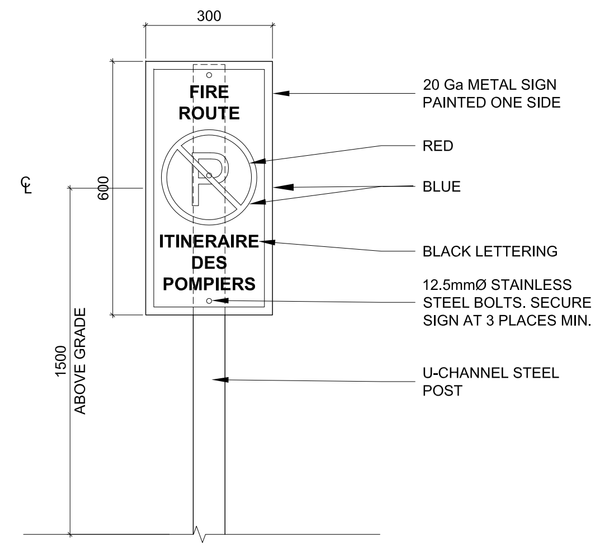

NOTES:

1. ALL PARKING LOT LINE STRIPING TO BE 125mm WIDE. REFER TO SPECIFICATION FOR PAINT TYPE & COLOUR.
2. ALL PARKING DIMENSIONS SHOWN TO CENTERLINE OF STALL STRIPES. STALL DIMENSIONS VARY. REFER TO SITE PLAN.
3. REFER TO SITE PLAN 1/A1.00 FOR STALL LOCATION.

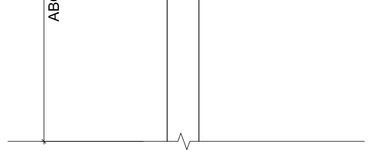
2 A1.03 VEHICLE ACCESS RAMP DETAIL
SCALE = 1:100



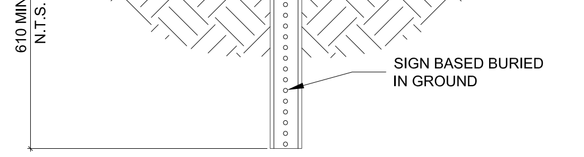

3 A1.03 'DO NOT ENTER' SIGN DETAIL
SCALE = 1:10



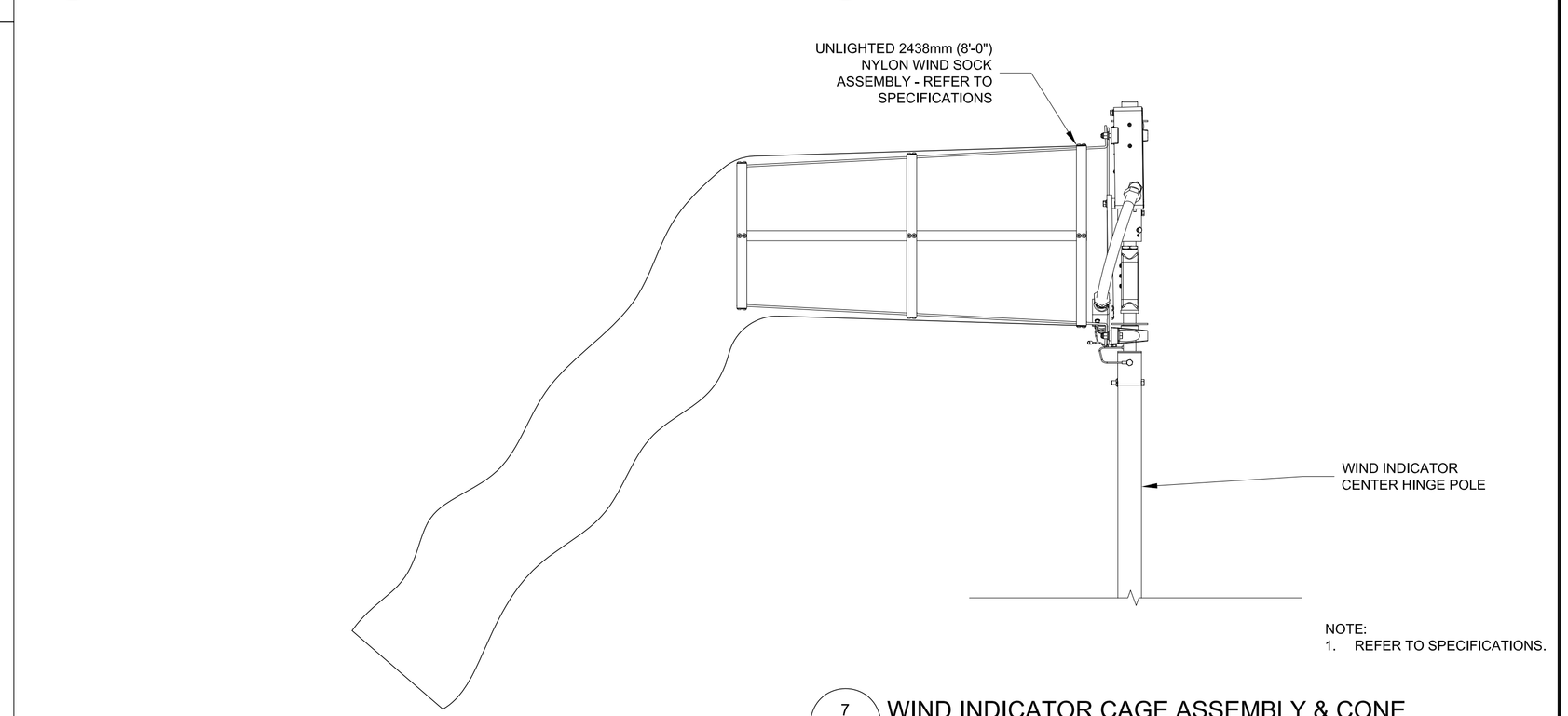

4 A1.03 FIRE ROUTE SIGN DETAIL
SCALE = 1:10



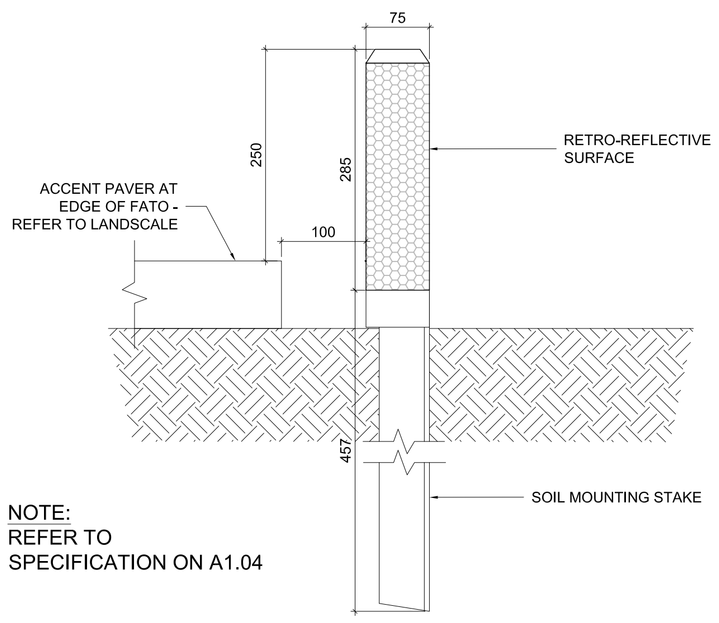

5 A1.03 'HELICOPTER LANDING / NOSMOKING' SIGN DETAIL
SCALE = 1:10




6 A1.03 U-CHANNEL POST DETAIL
SCALE = 1:10

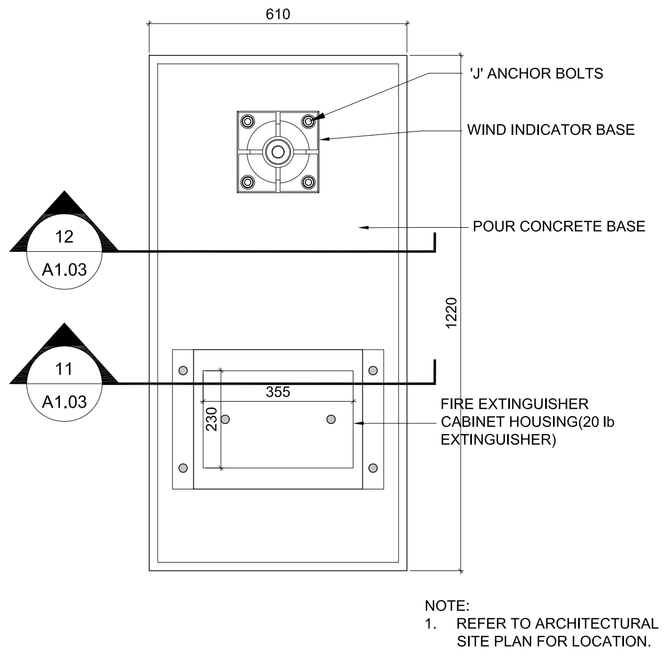



7 A1.03 WIND INDICATOR CAGE ASSEMBLY & CONE
SCALE = 1:10



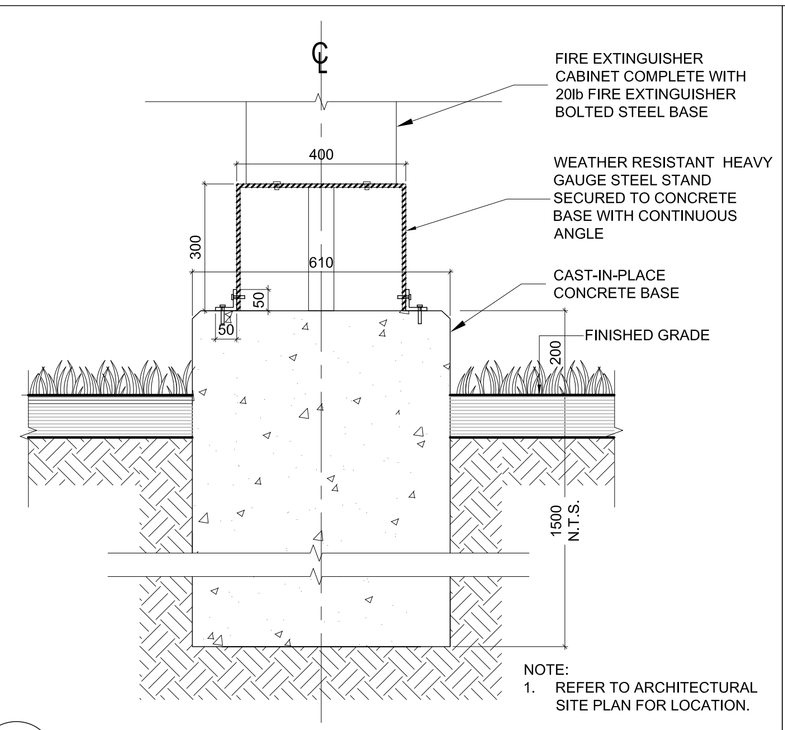

NOTE:
REFER TO
SPECIFICATION ON A1.04

9 A1.03 FATO EDGE MARKER DETAIL
SCALE = 1:5



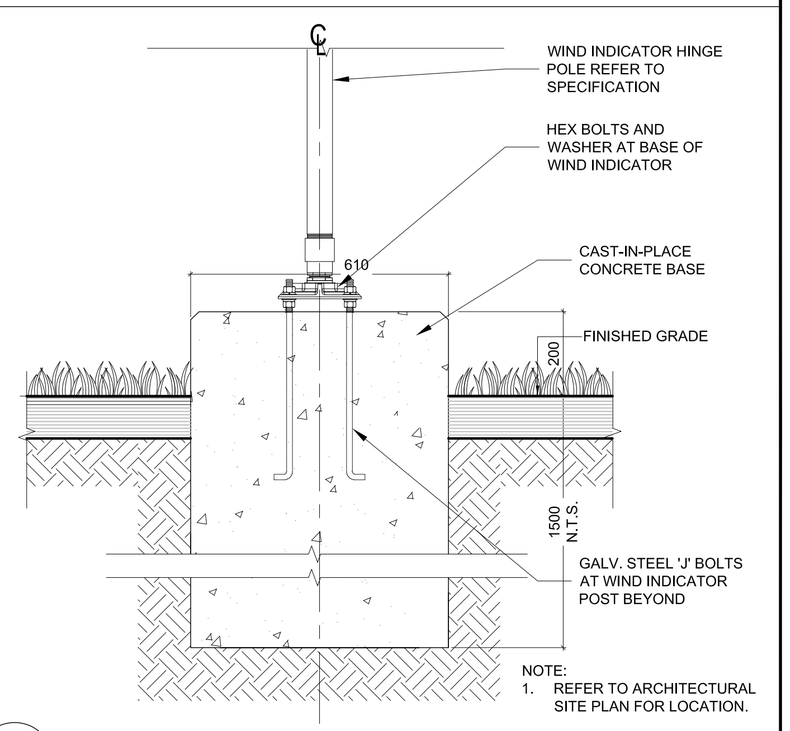

NOTE:
1. REFER TO ARCHITECTURAL SITE PLAN FOR LOCATION.

10 A1.03 FIRE EXTINGUISER / WIND INDICATOR BASE PLAN
SCALE = 1:10




NOTE:
1. REFER TO ARCHITECTURAL SITE PLAN FOR LOCATION.

11 A1.03 FIRE EXTINGUISER BASE
SCALE = 1:10




NOTE:
1. REFER TO ARCHITECTURAL SITE PLAN FOR LOCATION.

12 A1.03 WIND INDICATOR BASE
SCALE = 1:10

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Drawing Title:
SITE DETAILS - HELIPORT ENLARGED

Drawing:
A1.03

## GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THOROUGHLY EXAMINING THE SITE TO DETERMINE THE EXTENT OF EXISTING CONDITIONS, AND ACCEPT ALL CONDITIONS PRIOR TO WORK.
2. ALL WORK SHALL BE PERFORMED TO THE REQUIREMENTS OF THE NATIONAL BUILDING CODE, LATEST EDITION AND TO THE REQUIREMENTS OF ALL OTHER CODES & REGULATIONS, AND OF ALL AUTHORITIES HAVING JURISDICTION.
3. CONTRACTOR TO VERIFY ALL SITE DIMENSIONS NOTED ON DRAWINGS, DETAILS & SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO DESIGNER BEFORE PROCEEDING WITH WORK.
4. CONTRACTOR TO BE RESPONSIBLE FOR ALL DAMAGES TO SURFACES, FINISHES AND MATERIALS, AND SHALL BEAR ALL COSTS INCURRED TO RECTIFY, REPAIR OR REPLACE SAME TO PRE-CONSTRUCTION CONDITION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND OFF-SITE DISPOSAL OF ALL CONSTRUCTION DEBRIS AND GARBAGE. CONTRACTOR TO LEAVE SITE (AREA OF DESIGNATED WORK AND SURROUNDING AREAS) CLEAN AND FREE OF CONSTRUCTION DEBRIS UPON COMPLETION OF ALL WORK.
6. CONTRACTOR TO PROTECT ALL ADJACENT LANDSCAPING, PARKING SPACES, ETC. FROM WORK. REINSTATE ASPHALT, CONCRETE AND LANDSCAPING TO ORIGINAL STATE AT COMPLETION OF WORK.
7. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR PROCEEDING WITH ANY WORK PRIOR TO DEPARTMENT REPRESENTATIVE'S REVIEW AND APPROVAL.
8. DRAWINGS TO BE READ IN CONJUNCTION WITH CIVIL, LANDSCAPE AND ELECTRICAL DRAWINGS. DESIGN DRAWINGS TO GOVERN FOR LOCATIONS ONLY.
9. THE CONTRACTOR MUST STRICTLY ADHERE TO ALL REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ITS PERSONNEL AND SUBCONTRACTORS OBSERVE AND COMPLY WITH ALL APPLICABLE CONSTRUCTION SAFETY REGULATIONS.

## STAGING AND CONSTRUCTION PLAN

THE GENERAL CONTRACTOR SHALL PREPARE AND SUBMIT A STAGING AND CONSTRUCTION PLAN IMMEDIATELY UPON AWARD. THE STAGING AND CONSTRUCTION PLAN SHALL INCLUDE AT A MINIMUM THE FOLLOWING:

- DEMONSTRATE SHORING AND TIEBACKS ( IF APPLICABLE).
- LOCATION OF MATERIAL STOCKPILES.
- LOCATION OF THE SITE TRAILER & PORTABLE TRAILERS.
- AREA DESIGNATED FOR UNLOADING OF MATERIALS.
- SEDIMENT AND EROSION CONTROLS WITH DETAILS.
- CONSTRUCTION AND HOARDING OR FENCE AROUND THE SITE WITH DETAILS, TO COMPLY WITH OCCUPATIONAL HEALTH AND SAFETY REGULATIONS FOR CONSTRUCTION PROJECTS O.reg.213/91s: TRAFFIC CONTROL (67-69.1); EQUIPMENT GENERAL (93-116); PART III (EXCAVATIONS)
- THE PARKING LOT IS NOT TO BE USED FOR ANY CONSTRUCTION PURPOSE.
- INDICATE THE CONSTRUCTION ENTRANCE WITH DETAILS.
- DAILY SWEEPING AND DUST CONTROL IS REQUIRED

## VISUAL AIDS

ALL REQUIRED VISUAL AIDS SHALL MEET TRANSPORT CANADA REQUIREMENTS PER CARS 325.

## FATO EDGE MARKERS

IN ACCORDANCE WITH CARS 325.35(2)(A) FATO AREA EDGE MARKERS SHALL BE PROVIDED WHERE A FATO EDGE MARKING IS NOT PROVIDED AND THERE IS LACK OF CONTRAST BETWEEN THE BOUNDARY OF THE FATO AREA AND THE SURROUNDING GROUND.

THE FOLLOWING DETAILS THE REQUIRED PHYSICAL CHARACTERISTICS:
SHALL BE PROVIDED IN ACCORDANCE WITH CARS 325.35(2)(A)
SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

- LOCATED ON THE BOUNDARY OF THE FATO
- HAVE A MAXIMUM HEIGHT NOT EXCEEDING 25cm ABOVE THE FATO EDGE
- EQUALLY SPACED WITH SEPARATION NOT EXCEEDING 7.5m
- RED/WHITE RETRO-REFLECTIVE COLOURING

SHALL BE LOCATED SUCH THAT THEY DO NOT BLOCK THE HELIPORT ENTRANCE
RECOMMENDED EQUIPMENT: FLIGHT LIGHT INC. HONEYWELL TYPE L-853OR APPROVED EQUAL.

IT IS PROPOSED THAT THE MANUFACTURE WOULD MODIFY THE STAKE MOUNTED MARKERS SUCH THAT THE MAXIMUM HEIGHT IS NOT GREATER THAN 229mm (9") ABOVE GRADE AND WOULD BE FITTED WITH SILVER/RED REFLECTIVE BANDS.

## WIND DIRECTION INDICATOR

SHALL BE PROVIDED IN ACCORDANCE WITH CARS 325.31(1)

SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

- 2.4m (8 FT) CAGE
- BOTTOM-HINGED POLE (NO SWITCH)
- UNLIT CAGE
- NO OBSTRUCTION LIGHT
- SOLID ORANGE WIND SOCK

SHALL BE LOCATED PER THE LAYOUT PROVIDED AND SHALL NOT BE:

- CLOSER THAN 3.0m OUTSIDE THE HELIPORT SAFETY AREA
- LOCATED UNDER THE APPROACH/DEPARTURE FLIGHT PATH
- LOCATED WITHIN THE TRANSITIONAL SURFACE

RECOMMENDED EQUIPMENT: ADB AIRFIELD SOLUTIONS TYPE WC807OR, FLIGHT LIGHT L-806 APPROVED EQUAL.

PROVIDE 2 WIND DIRECTION INDICATOR SOCKS. INSTALL 1 AND PROVIDE THE OTHER TO THE OWNER FOR FUTURE USE.

## OBSTRUCTION LIGHTING

SHALL BE PROVIDED IN ACCORDANCE WITH CARS 325.37(1)(A) AND CARS 621

SHALL BE LOCATED PER THE LAYOUT - ON THE TOP-MOST PART OF THE NOAF BUILDING IN THE LOCATIONS SHOWN ON THE ATTACHED.

SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

- LED BULB-TYPE
- STEADY BURNING (24/7)
- OBSTRUCTION LIGHT RED, ICAO TYPE A
- DUAL FIXTURE

ALIGNED IN AN EAST/WEST ORIENTATION WITH THE ACTIVE FIXTURE BEING THE EASTERN FIXTURE

RECOMMENDED EQUIPMENT: ADB AIRFIELD SOLUTIONS TYPE L-810 OR APPROVED EQUAL

REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

## HELIPORT IDENTIFICATION MARKING

SHALL BE PROVIDED IN ACCORDANCE WITH CARS 325.31(2)(A)

SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

- SHALL CONSIST OF A CAPITAL LETTER 'H'
- SHALL BE CENTRED WITHIN THE AIMING POINT MARKING
- SHALL BE WHITE IN COLOUR
- SHALL BE CO-ORDINATED WITH THE AIMING POINT MARKING AND ALIGNED WITH MAGNETIC NORTH

SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GEOMETRY PROVIDED.

## AIMING POINT MARKING

SHALL BE PROVIDED IN ACCORDANCE WITH CARS 325.31(2)(C)

SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

- SHALL CONSIST OF DASHED LINES FORMING AN EQUILATERAL TRIANGLE.
- SHALL BE WHITE IN COLOUR.
- SHALL BE CENTRED WITHIN THE FATO.
- SHALL BE CO-ORDINATED WITH THE HELIPORT IDENTIFICATION MARKING AND ALIGNED WITH MAGNETIC NORTH.

SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GEOMETRY PROVIDED.

## SIGN POSTS

PROVIDE 2438mm (8'-0") LONG U-CHANNEL STEEL SIGN POSTS WITH GALVANIZED FINISH. POSTS ARE TO HAVE PRE-DRILL HOLES TO ACCOMMODATE TRAFFIC SIGNS. PROVIDE ALL REQUIRED SIGNS AND SIGN MOUNTING HARDWARE.

## FIRE EXTINGUISHER

PROVIDE EXTERIOR GRADE FIRE EXTINGUISHER ENCLOSURE COMPLETE WITH 20lb FIRE EXTINGUISHER. FIRE EXTINGUISHER AND CABINET TO BE LOCATED ON SAME BASE A THE WIND DIRECTION INDICATOR.

RECOMMENDED PRODUCT:

CABINET: NATIONAL FIRE EQUIPMENT OUTDOOR FIRE EXTINGUISHER FIRE CABINET (CE-1000) OR APPROVED EQUAL

FIRE EXTINGUISHER: RATING OF 10-A:120:B PER ULC REQUIREMENTS.

## PAINTED LINES

PAINT USED ON CONCRETE AND ASPHALT SURFACES TO MEET MPI #32 (LOW VOC) TRAFFIC PAINT. PAINTED LINE WORK AT HELIPORT AND PARKING LOT TO BE WHITE.

rebanks pepper littlewood architects
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North:

Seal:

ONTARIO ASSOCIATION OF ARCHITECTS
JOHN E. KLOPPER
LICENCE
6103

| # | REVISION | DATE |
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| 3 | ISSUED FOR TENDER / SPA | 2014 / 09 / 29 |
| 2 | ISSUED FOR CLIENT REVIEW | 2014 / 09 / 15 |
| 1 | ISSUED FOR CLIENT REVIEW | 2014 / 07 / 28 |

Consultant:

Client:
Government of Canada / Gouvernement du Canada

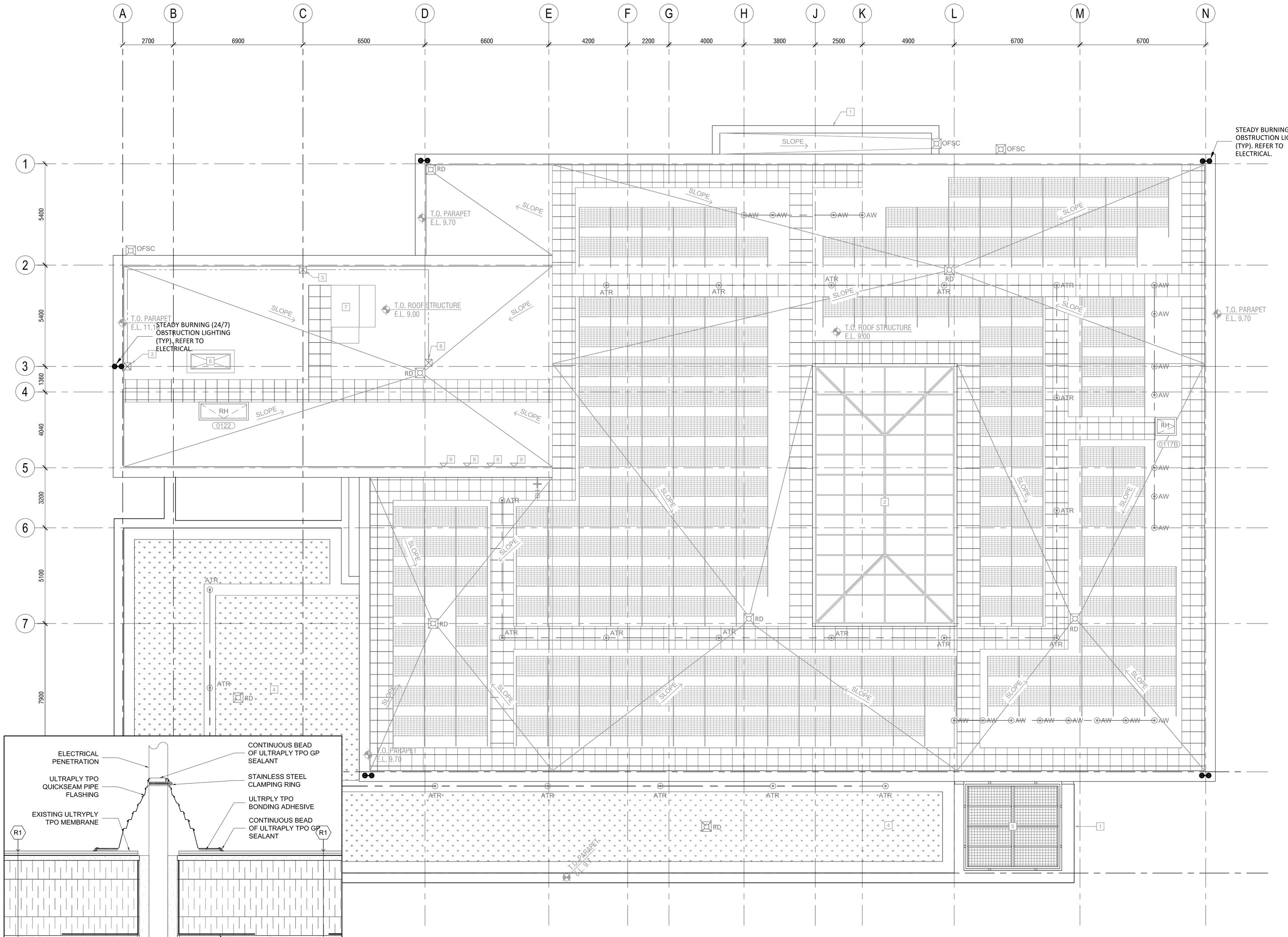
Project:
NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

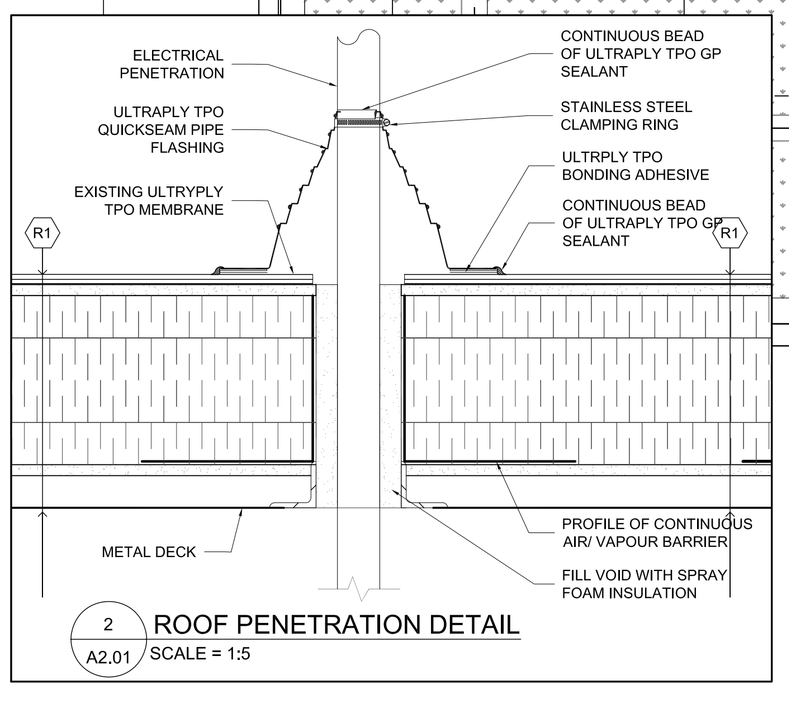
Location:
Niagara-on-the-Lake, Ontario

| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 201405776 |
| Tender: | September 29, 2014 |
| Date: | September 29, 2014 |
| Scale: | AS INDICATED |
| Drawn By: | WW |
| Checked By: | - |

Drawing Title:
NOTES SPECIFICATIONS

Drawing:
A1.04




2 A2.01 ROOF PENETRATION DETAIL
SCALE = 1:5

1. ALL GRID LINES ARE TO FACE OF STRUCTURE UNLESS NOTED OTHERWISE.
2. AT ALL FIRE SEPARATIONS ANY PENETRATIONS OR OPENINGS MUST BE SEALED WITH APPROVED FIRE STOPPING MATERIAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE INTEGRITY OF THE FIRE RATED ASSEMBLY IS MAINTAINED.
3. CONTRACTOR TO SEAL AND REPAIR ALL ROOF AND WALL PENETRATIONS.
4. REFER TO ELECTRICAL DRAWINGS FOR OBSTRUCTION LIGHTING MOUNTING DETAIL
5. OBSTRUCTION LIGHTING TO BE MOUNTED ON TOP OF PARAPET. COORDINATE CONDUIT ROUTING WITH SOLAR PANEL LAYOUT.

ROOF PLAN SYMBOL LEGEND

- INDICATES LOCATION OF ROOF OBSTRUCTION LIGHTS. REFER TO ELECTRICAL.

EXISTING ROOF PLAN SYMBOL LEGEND

- (1001) INDICATES DOOR REFERENCE. REFER TO DOOR SCHEDULE.
- INDICATES CONCRETE BLOCK OR MASONRY VENEER
- LINE INDICATING PATH OF VHF ANTENNA CABLE. REFER TO ELECTRICAL
- LINE INDICATING PATH OF HORIZONTAL LIFE LINE ASSEMBLY AND TRAVEL RESTRAINT. REFER TO SPECIFICATION.
- INDICATES LOCATION OF MODULAR ACCESS PAVERS. REFER TO SPECIFICATION.
- INDICATES LOCATION OF BALLASTED PHOTOVOLTAIC PANEL. REFER TO ELECTRICAL.
- PRPT 121.75 INDICATES GEODETIC ELEVATION OF COMPONENT
- SLOPE INDICATES DIRECTION OF ROOF SLOPE TO DRAIN.
- HB INDICATES HOSE BIBB.REFER TO MECHANICAL.
- RD INDICATES LOCATION OF ROOF DRAIN.REFER TO MECHANICAL.
- OFSC INDICATES LOCATION OF OVER FLOW ROOF SCUPPER. REFER TO ELEVATIONS FOR LOCATION. REFER TO MECHANICAL.
- AW INDICATES LOCATION OF ROOF ANCHOR FOR WINDOW WASHING. REFER TO DETAIL 1/A6.20 AND 2/A6.20
- ATR INDICATES LOCATION OF ROOF ANCHOR FOR TRAVEL RESTRAINT SYSTEM. REFER TO 1/A6.20 AND 2/A6.20.
- RH INDICATES LOCATION OF ROOF HATCH REFER TO SPECIFICATION.

ROOF PLAN CODE LEGEND

1. LINE INDICATING ROOF CANOPY BELOW.
2. EXISTING SELF-SUPPORTING SKYLIGHT.
3. EXISTING LOCATION OF VHF ANTENNA.
4. EXISTING GREEN ROOF BELOW.
5. EXISTING WELDED WIRE CANOPY.
6. EXISTING MECHANICAL LOUVERS.
7. EXISTING ROOF TOP MECHANICAL UNIT.
8. LOCATION OF EXISTING VHF CABLE ENTRY INTO BUILDING.
9. LOCATION OF EXISTING CONDUIT AND DEVICE BOX FOR AC DISCONNECT FOR PHOTOVOLTAIC SYSTEM.

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North:

Seal:

ONTARIO ASSOCIATION OF ARCHITECTS
JOHN E. TUCKER
LICENCE 6103

| # | REVISION | DATE |
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| 3 | ISSUED FOR TENDER / SPA | 2014 / 09 / 29 |
| 2 | ISSUED FOR CLIENT REVIEW | 2014 / 09 / 15 |
| 1 | ISSUED FOR CLIENT REVIEW | 2014 / 07 / 28 |

Consultant:

Client:
Government of Canada / Gouvernement du Canada

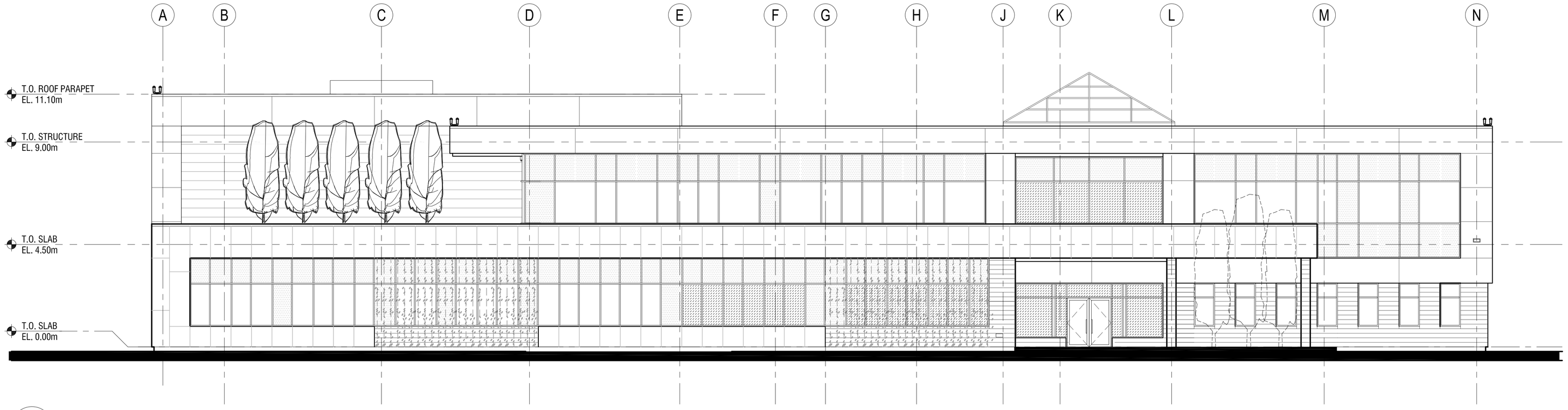
Project:
NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

Location:
Niagara-on-the-Lake, Ontario

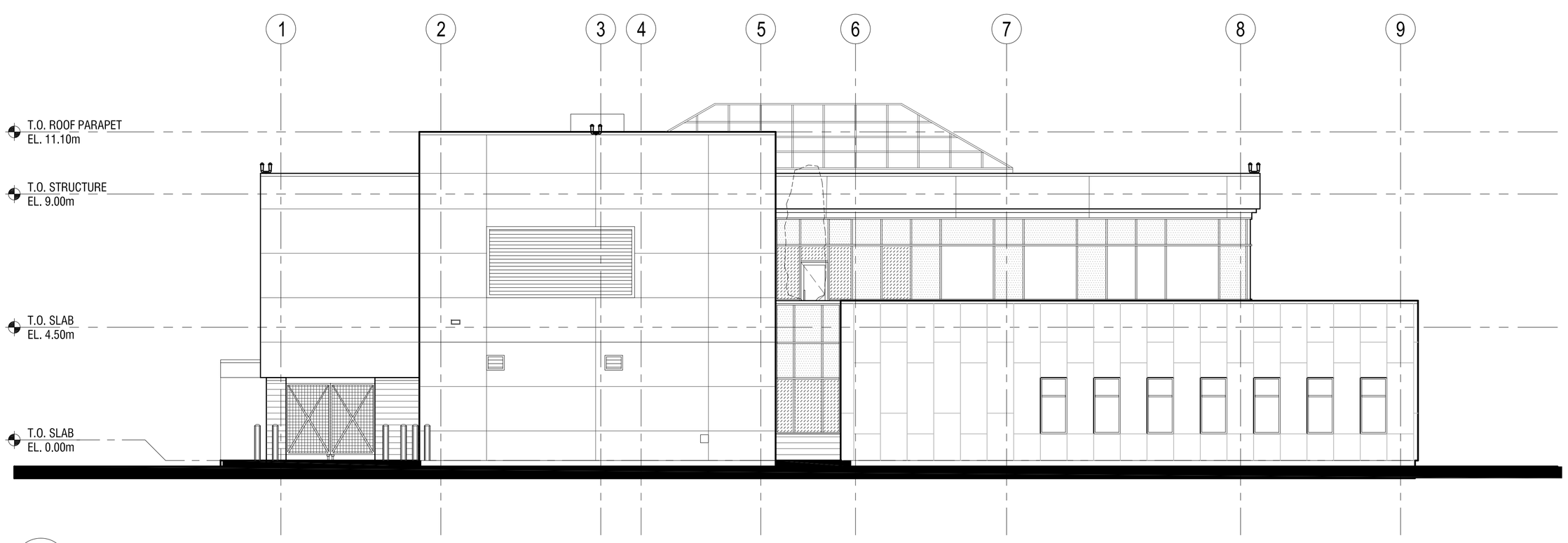
| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 201405776 |
| Tender: | September 29, 2014 |
| Date: | September 29, 2014 |
| Scale: | 1:100 |
| Drawn By: | ww |
| Checked By: | |

Drawing Title:
NOAF - ROOF PLAN

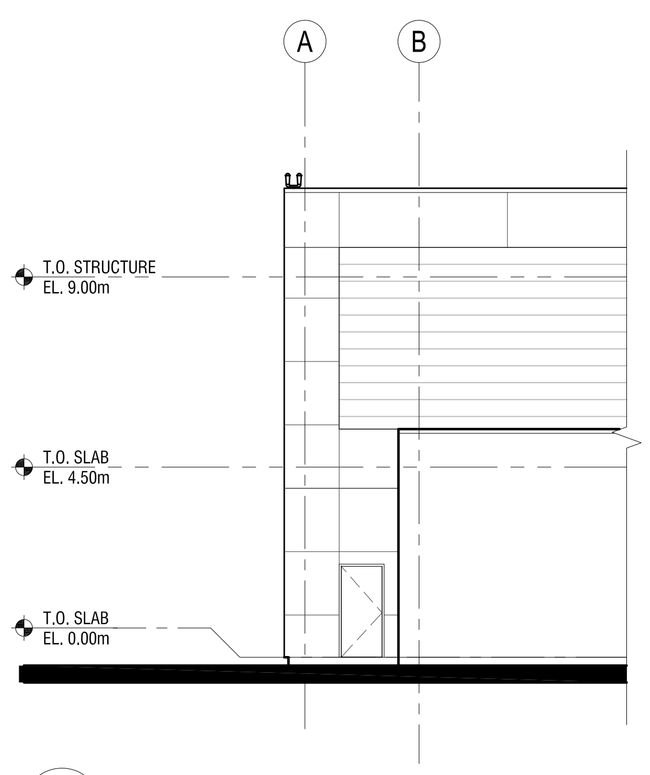
Drawing:
A2.01




1 / A4.00 SOUTH ELEVATION
SCALE = 1:100




2 / A4.00 WEST ELEVATION
SCALE = 1:100




3 / A4.00 PARTIAL ELEVATION
SCALE = 1:100

## ELEVATION GENERAL NOTES

STEADY BURNING ROOF MOUNTED OBSTRUCTION LIGHTING. REFER TO ELECTRICAL.

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Consultant:

Client:
Government of Canada / Gouvernement du Canada

Project:
NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

Location:
Niagara-on-the-Lake, Ontario

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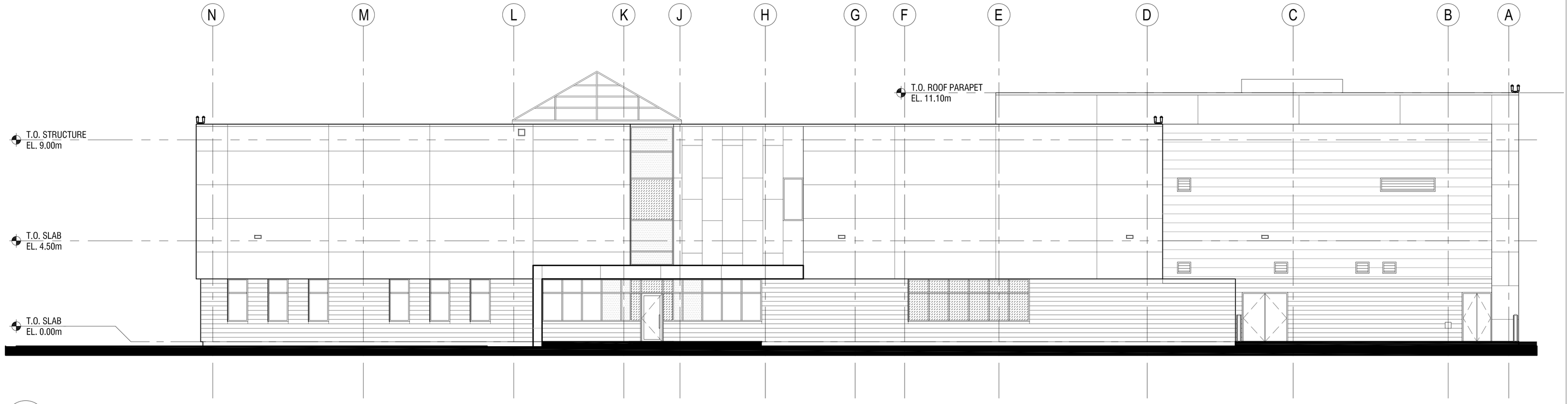
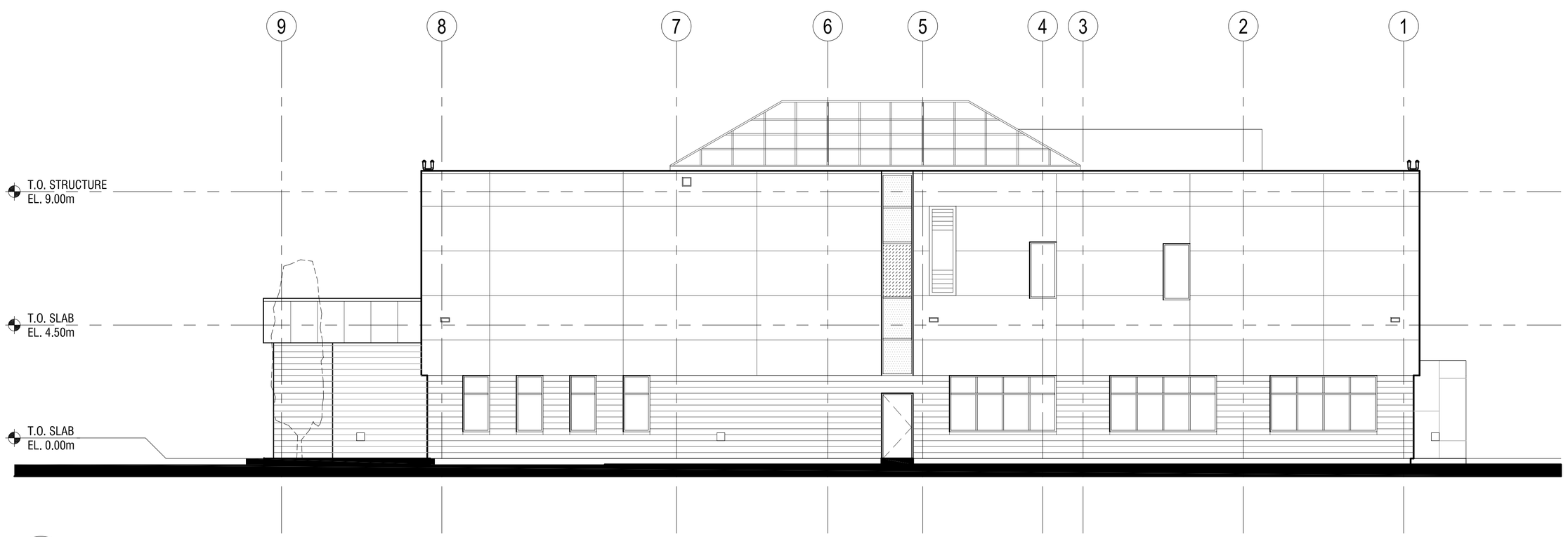
| Project Manager: | PJ |
| Project Number: | 201405776 |
| Tender: | September 29, 2014 |
| Date: | September 29, 2014 |
| Scale: | 1:100 |
| Drawn By: | ww |
| Checked By: | |

Drawing Title:
BUILDING ELEVATIONS - 1

Drawing:
A4.00




1 / A4.01 NORTH ELEVATION
SCALE = 1:100




2 / A4.01 EAST ELEVATION
SCALE = 1:100

ELEVATION GENERAL NOTES

STEADY BURNING ROOF MOUNTED OBSTRUCTION LIGHTING. REFER TO ELECTRICAL.

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JOHN E. PEPPER
LICENCE
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| # | REVISION | DATE |
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| 2 | ISSUED FOR CLIENT REVIEW | 2014 / 09 / 15 |
| 1 | ISSUED FOR CLIENT REVIEW | 2014 / 07 / 28 |

Consultant:

Client:
Government of Canada / Gouvernement du Canada

Project:
NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

Location:
Niagara-on-the-Lake, Ontario

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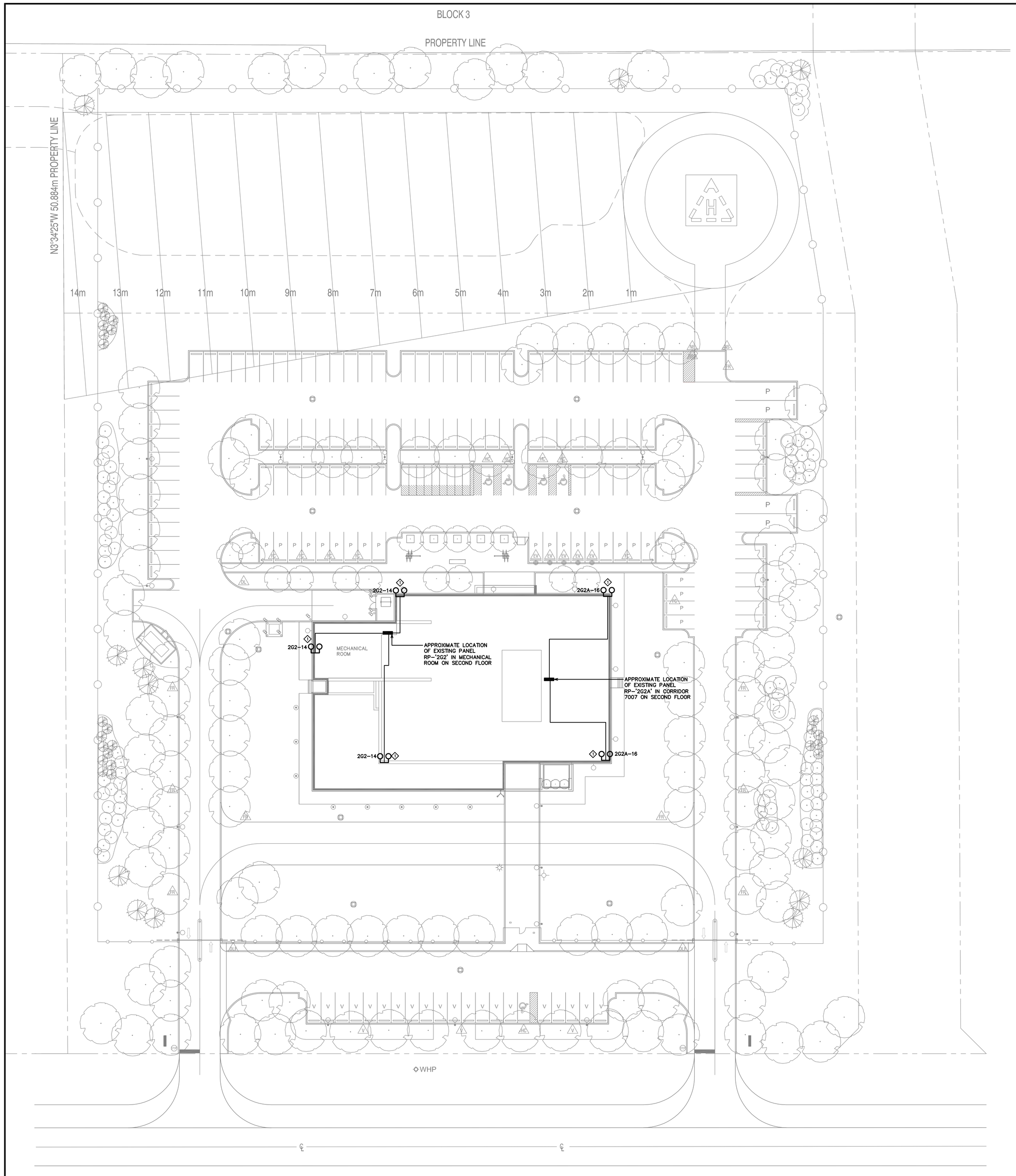
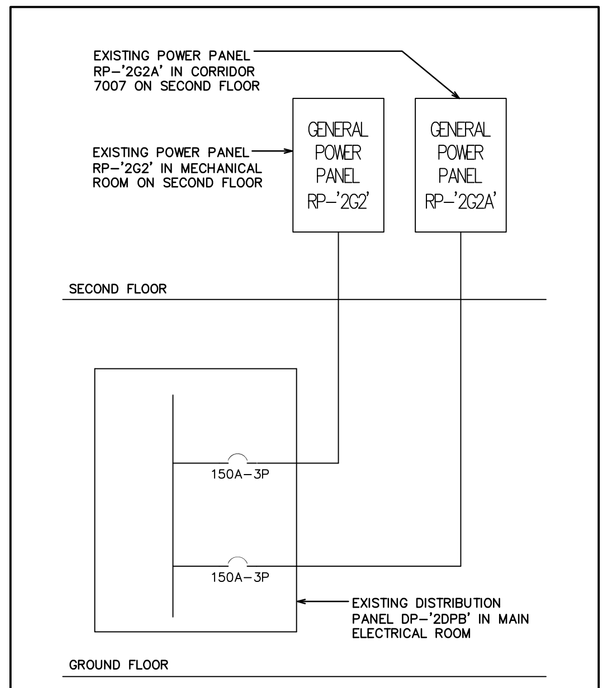
| Project Manager: | PJ |
| Project Number: | 201405776 |
| Tender: | September 29, 2014 |
| Date: | September 29, 2014 |
| Scale: | 1:100 |
| Drawn By: | ww |
| Checked By: | |

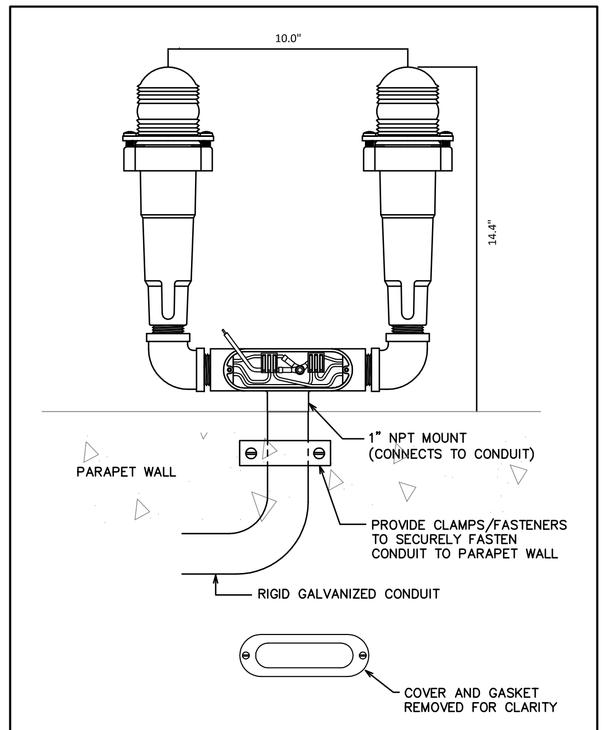
Drawing Title:
BUILDING ELEVATIONS - 2

Drawing:
A4.01




SINGLE LINE DIAGRAM




OBSTRUCTION LIGHT MOUNTING DETAIL

**NOTES:**

1. DUAL FIXTURE RED OBSTRUCTION LIGHT. ACTIVE FIXTURE TO FACE EAST. FIXTURE TO BE MOUNTED ON PARAPET. FIXTURES TO BE UNCONTROLLED AND OPERATING CONTINUOUSLY. PROVIDE LOCK-'ON' DEVICE ON BREAKERS FEEDING OBSTRUCTION LIGHTS.

ACCEPTABLE MANUFACTURES INCLUDE:
ADB-L-810(L) DUAL LED OBSTRUCTION LIGHT
COOPER CROUSE-HINDS: RTLDF/120-240
FLIGHT LIGHT: FAA L-810 (RED LED)
OR APPROVED EQUAL

## EXISTING PANELBOARD SCHEDULE

| PANEL | TYPE 120/208V 3P,4W | TYPE 347/600V 3P,4W | MAINS | MTG. | FEED THRU LUGS | SUB-FEED LUGS | POLES | BREAKER SIZE 15A | 20A | 30A | 40A | 50A | 60A | SPACE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RP-'2G2' | • | | 225A | | • | | 1 | 23 | 5 | | | | | 12 | 42 CIRCUIT PANEL<br>20A-1P: CCT 6, 7, 9, 11, 13<br>20A-2P: CCT 10/12 |
| | | | | | | | 2 | | 1 | | | | | | |
| | | | | | | | 3 | | | | | | | | |
| RP-'2G2A' | • | | 225A | | • | | 1 | 19 | 5 | | | | | 12 | 42 CIRCUIT PANEL<br>20A-1P: CCT 2, 4, 6, 12, 13<br>20A-2P: CCT 8/10, 9/11, 15/17 |
| | | | | | | | 2 | | 3 | | | | | | |
| | | | | | | | 3 | | | | | | | | |

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North:

Seal:

LICENSED PROFESSIONAL ENGINEER 8262 D. C. M. BELLAMY PROVINCE OF ONTARIO

| # | REVISION | DATE |
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| 1 | ISSUED FOR TENDER/SPA | 2014 / 09 / 29 |

Consultant:
MCW Consultants Ltd.
207 Queen's Quay West, Suite 615, Toronto, ON, M5J 1A7
E-Mail: mcw_tor@mcw.com www.mcw.com
Tel: 416-598-2920 Fax: 416-598-5394
Toronto Vancouver Winnipeg Moncton Ottawa Halifax Dauphin Kelowna Trail Saint John

Client:
Government of Canada / Gouvernement du Canada

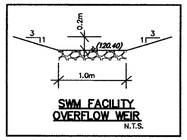
Project:
NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

Location:
Niagara-on-the-Lake, Ontario

| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 201405776 |
| Tender: | July 31, 2014 |
| Date: | September 30, 2014 |
| Scale: | 1:400 |
| Drawn By: | R.A. |
| Checked By: | K.S. |

Drawing Title:
SITE PLAN HELIPORT ELECTRICAL

Drawing:
E1-01




## NOTES TO CONTRACTOR:

1. INSPECTION
CONTRACTOR IS RESPONSIBLE FOR CONTACTING ENGINEER 48 HRS PRIOR TO COMMENCING WORK TO ARRANGE FOR INSPECTION. ENGINEER TO DETERMINE DEGREE OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF UNDERGROUND SERVICE INSTALLATION AS MANDATED BY ONTARIO BUILDING CODE DIVISION C, PART 1, SECTION 1.2.2, GENERAL REVIEW. FAILURE TO NOTIFY ENGINEER WILL RESULT IN EXTENSIVE POST CONSTRUCTION INSPECTION AT CONTRACTORS EXPENSE.

2. CONFIRMATION OF EXISTING INVERTS
72 HOURS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS TO LOCATE, EXPOSE AND VERIFY INVERTS OF EXISTING SEWERS AT CONNECTION POINTS WITH THE ENGINEER PRESENT. SHOULD THE CONTRACTOR PROCEED WITHOUT COMPLETING THESE LOCATES, EXTRA COSTS RESULTING FROM DELAYS AND STANDBY TIME WILL NOT BE CONSIDERED.

TOWN OF NIAGARA-ON-THE-LAKE APPROVAL

| PUBLIC WORKS | |
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| SIGNATURE | DATE |
| NAME | POSITION |

| FIRE & EMERGENCY SERVICES | |
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| SIGNATURE | DATE |
| NAME | POSITION |

## LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- EXISTING SPOT ELEVATIONS/CONTOURS
- EXISTING CURB
- EXISTING FENCE
- EXISTING EMBANKMENT (SLOPE AS NOTED)
- REMOVALS
- EXISTING DIRECTION OF DRAINAGE/SWALE

## LEGEND OF PROPOSED FEATURES

- PROPOSED SPOT ELEVATIONS
  EX =MAINTAIN EXISTING
  T/G =TOP OF CASTING/GRATE
  INV =INVERT ELEVATION
  FFE =FINISHED FLOOR ELEVATION
- DIRECTION OF DRAINAGE/SWALE
- DRAINAGE SPLIT (RIDGE)
- RETAINING WALL
- CONCRETE CURB
- EMBANKMENT (SLOPE AS NOTED)
- FENCE
- SEDIMENT CONTROL FENCE (SEE DETAIL)
- SILT SACK
- CONSTRUCTION ACCESS (SIZE AS NOTED)
- RIP RAP (SIZE & TYPE AS NOTED)
- OVERHEAD DOOR
- MAN DOOR
- PROPOSED DOWNSPOUT
- OVERLAND FLOW ROUTE (MAJOR STORM)

REBANKS Pepper Littlewood Architects Inc.
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North:

NORTH

Seal:

LICENSED PROFESSIONAL ENGINEER
K. R. RAMSEWAK
100100528
SEP 29/14
PROVINCE OF ONTARIO

| # | REVISION | DATE |
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| 3 | Issued for Tender / SPA | 2014/09/29 |
| 2 | Issued for Client Review | 2014/09/15 |
| 1 | Issued for Client Review | 2014/07/28 |

Consultant:

MTE 25 YEARS 1985-2010
Site Division
(905)639-2552 www.mte85.com

Client:

Government of Canada / Gouvernement du Canada

Project:

NIAGARA OFFICE ADMINISTRATION FACILITY

Location:

Niagara-on-the-Lake, Ontario

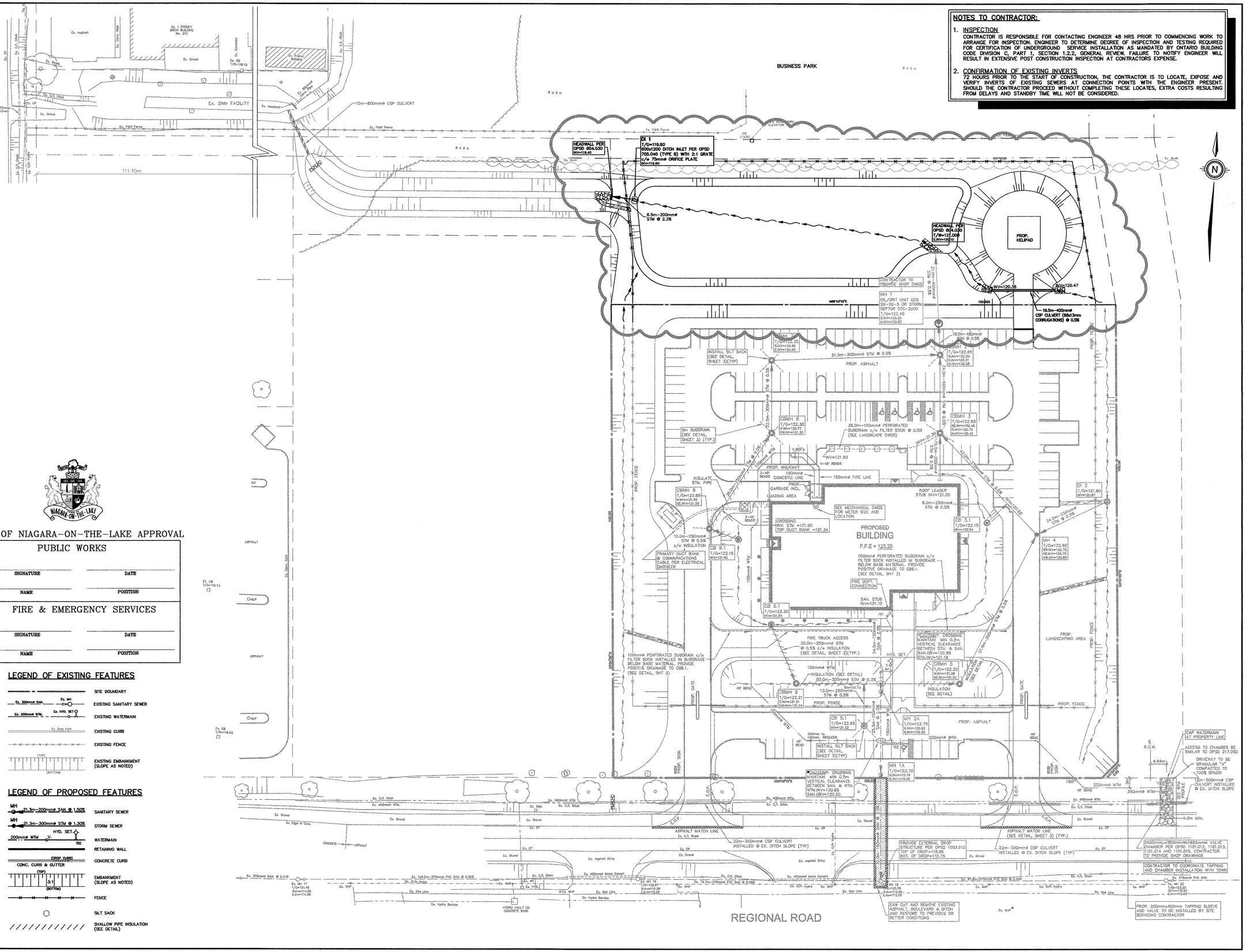
| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 1322-003 |
| Tender: | 2012/04/10 |
| Date: | Sep.21/11 |
| Scale: | 1:500 |
| Drawn By: | AXG |
| Checked By: | SVF |

Drawing Title:

SITE GRADING PLAN

Drawing:

C2.1




## NOTES TO CONTRACTOR:

1. **INSPECTION**
   CONTRACTOR IS RESPONSIBLE FOR CONTACTING ENGINEER 48 HRS PRIOR TO COMMENCING WORK TO ARRANGE FOR INSPECTION. ENGINEER TO DETERMINE DEGREE OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF UNDERGROUND SERVICE INSTALLATION AS MANDATED BY ONTARIO BUILDING CODE DIVISION C, PART 1, SECTION 1.2.2, GENERAL REVIEW. FAILURE TO NOTIFY ENGINEER WILL RESULT IN EXTENSIVE POST CONSTRUCTION INSPECTION AT CONTRACTORS EXPENSE.
2. **CONFIRMATION OF EXISTING INVERTS**
   72 HOURS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS TO LOCATE, EXPOSE AND VERIFY INVERTS OF EXISTING SEWERS AT CONNECTION POINTS WITH THE ENGINEER PRESENT. SHOULD THE CONTRACTOR PROCEED WITHOUT COMPLETING THESE LOCATES, EXTRA COSTS RESULTING FROM DELAYS AND STANDBY TIME WILL NOT BE CONSIDERED.

TOWN OF NIAGARA-ON-THE-LAKE APPROVAL

| PUBLIC WORKS | |
|---|---|
| SIGNATURE | DATE |
| NAME | POSITION |
| **FIRE & EMERGENCY SERVICES** | |
| SIGNATURE | DATE |
| NAME | POSITION |

## LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- Ex. 300mmø SAN. / Ex. MH — EXISTING SANITARY SEWER
- Ex. 200mmø WTM. / Ex. HYD. SET — EXISTING WATERMAIN
- Ex. Drop Curb — EXISTING CURB
- EXISTING FENCE
- (TOP) / (BOTTOM) — EXISTING EMBANKMENT (SLOPE AS NOTED)

## LEGEND OF PROPOSED FEATURES

- MH / 21.3m-200mmø SAN @ 1.50% — SANITARY SEWER
- MH / 21.3m-300mmø STM @ 1.30% — STORM SEWER
- 200mmø WTM / HYD. SET / TEE — WATERMAIN
- RETAINING WALL
- (DROP CURB) / CONC. CURB & GUTTER — CONCRETE CURB
- (TOP) / 3:1 / (BOTTOM) — EMBANKMENT (SLOPE AS NOTED)
- FENCE
- SILT SACK
- SHALLOW PIPE INSULATION (SEE DETAIL)

REBANKS Pepper Littlewood Architects Inc.
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Tel (416)964-7163 Fax (416)964-5817 www.rebanks.ca



North: NORTH

Seal: LICENSED PROFESSIONAL ENGINEER — K. R. RAMSEWAK — 100100928 — Sep 21/14 — PROVINCE OF ONTARIO

| # | REVISION | DATE |
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| 3 | Issued for Tender / SPA | 2014/09/29 |
| 2 | Issued for Client Review | 2014/09/15 |
| 1 | Issued for Client Review | 2014/07/28 |

Consultant: MTE — 25 YEARS 1985-2010 — Site Division (905)639-2552 www.mte85.com

Client: Government of Canada / Gouvernement du Canada

Project: NIAGARA OFFICE ADMINISTRATION FACILITY

Location: Niagara-on-the-Lake, Ontario

| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 1322-003 |
| Tender: | 2012/04/10 |
| Date: | Sep.21/11 |
| Scale: | 1:500 |
| Drawn By: | AXC |
| Checked By: | SVF |

Drawing Title: SITE SERVICING PLAN

Drawing: C2.2

C2.3

35220-300-C2

MTE Computer Dwg No.

# CONSTRUCTION NOTES AND SPECIFICATIONS

**1.0 GENERAL**

1. THIS PLAN NOT FOR CONSTRUCTION UNTIL SIGNED AND SEALED BY ENGINEER AND APPROVED BY THE TOWN OF NIAGARA-ON-THE LAKE.
2. THIS PLAN IS TO BE USED FOR SERVICING AND GRADING ONLY; ANY OTHER INFORMATION SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. THIS PLAN MUST NOT BE USED TO SITE THE PROPOSED BUILDING.
3. NO CHANGES ARE TO BE MADE WITHOUT THE APPROVAL OF THE DESIGN ENGINEER. THIS PLAN NOT TO BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE PERMISSION OF MTE CONSULTANTS INC.
4. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE OWNER'S BONDED CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:
   - 4.1. ROAD CUT PERMITS
   - 4.2. APPROACH APPROVAL PERMITS
   - 4.3. COMMITTEE OF ADJUSTMENT
   - 4.4. SEWER PERMITS / SERVICING PERMITS
   - 4.5. RELOCATION OF SERVICES
   - 4.6. ENCROACHMENT AGREEMENTS
5. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST:

5.1. CHECK AND VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND ELEVATIONS WHICH INCLUDES BUT IS NOT LIMITED TO THE BENCHMARK ELEVATIONS, EXISTING SERVICE CONNECTIONS AND EXISTING INVERTS. REPORT ALL DISCREPANCIES TO THE DEPARTMENTAL REPRESENTATIVE.

5.2. OBTAIN ALL UTILITY LOCATES AND REQUIRED PERMITS AND LICENSES.

5.3. VERIFY THAT THE FINISHED FLOOR ELEVATIONS AND BASEMENT FLOOR ELEVATIONS (WHICH MAY APPEAR ON THIS PLAN) COMPLY WITH THE FINAL ARCHITECTURAL DRAWINGS.

5.4. CONFIRM ALL DRAWINGS USED FOR CONSTRUCTION ARE OF THE MOST RECENT REVISION.

6. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO EXISTING WORKS.
7. UNLESS OTHERWISE INDICATED BY THE TOWN OR REGION, ALL WORKS ON A MUNICIPAL RIGHT-OF-WAY WILL BE INSTALLED BY THE CONTRACTOR UPON APPLICATION BY OWNER AT OWNER'S EXPENSE.THE CONTRACTOR IS TO MAKE CONNECTION TO THE SERVICES AND RESTORE ALL AFFECTED PROPERTY TO ORIGINAL CONDITION.THE CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ALL BOULEVARD AREAS.
8. ALL UNDERGROUND SERVICES ARE TO BE CONSTRUCTED IN FULL COMPLIANCE WITH THE ONTARIO PROVINCIAL BUILDING CODE (PART 7, PLUMBING), THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) AND IN COMPLIANCE WITH LOCAL APPLICABLE CODES AND REGULATIONS; WHICH CODES AND REGULATIONS SHALL SUPERSEDE ALL OTHERS.
9. **CONTRACTOR IS RESPONSIBLE FOR CONTACTING ENGINEER 48 HRS PRIOR TO COMMENCING WORK TO ARRANGE FOR INSPECTION. ENGINEER TO DETERMINE DEGREE OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF UNDERGROUND SERVICE INSTALLATION AS MANDATED BY ONTARIO BUILDING CODE SECTION 2.3.2. FAILURE TO NOTIFY ENGINEER WILL RESULT IN EXTENSIVE POST ONSTRUCTION INSPECTION AT CONTRACTORS EXPENSE.**
10. SITE PLAN INFORMATION TAKEN FROM PLAN PREPARED BY REBANKS PEPPER LITTLEWOOD ARCHITECTS INC., RECEIVED SEPTEMBER 19 2011.
11. EXISTING TOPOGRAPHIC AND LEGAL INFORMATION TAKEN FROM PLAN PREPARED BY RICHARD LAROCQUE LIMITED,
12. CONTRACTOR TO INSTALL EROSION CONTROL MEASURES AS SHOWN PRIOR TO CONSTRUCTION AND MAINTAIN IN GOOD CONDITION UNTIL CONSTRUCTION IS COMPLETED AND VEGETATIVE COVER IS ESTABLISHED.
13. SITE SERVICING CONTRACTOR TO TERMINATE ALL SERVICES 1.0 METER FROM FOUNDATION WALL.
14. FILTER FABRIC TO BE TERRAFIX 270R OR APPROVED ALTERNATIVE.
15. MAXIMUM GRASSED SLOPE TO BE 3:1. SLOPES GREATER THAN 3:1 TO BE LANDSCAPED WITH LOW MAINTENANCE GROUND COVER.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD INCLUDING THE SUPPLY, INSTALLATION AND REMOVAL OF ALL NECESSARY SIGNALS, DELINEATORS, MARKERS, AND BARRIERS. ALL SIGNS, ETC. SHALL CONFORM TO THE STANDARDS OF THE LOCAL MUNICIPALITY AND THE MTO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. CONTRACTOR TO MAINTAIN A 'CONFINED TRENCH CONDITION' IN ALL SEWER AND SERVICE TRENCHES.
19. REFER TO GEOTECHNICAL REPORT(S) FOR PAVEMENT DESIGN SPECIFICATIONS.
20. ALL AREAS IMPACTED DURING CONSTRUCTION MUST BE REINSTATED WITH GRASS SEED UNLESS NOTED OTHERWISE IN LANDSCAPING.

**2.0 STORM SEWERS AND CULVERTS**

1. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. BEDDING MATERIAL AND COVER MATERIAL TO BE GRAN. "A".TRENCH BACKFILL TO BE NATIVE MATERIAL REPLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
2. CULVERTS SHALL BE CORRUGATED STEEL PIPES (CSP) WITH 68mm X 13mm CORRUGATION PROFILE AND ALUMINIZED TYPE II COATING. PIPE, MATERIAL AND COATING TO CONFORM TO CSA G401 AND ASTM A929 STANDARDS. CULVERT ENDS TO BE STRAIGHT OR MITERED TO SLOPE.
3. MINIMUM COVER OVER CULVERTS TO BE DIAMETER/6 OR 300mm, WHICHEVER IS GREATER.

**3.0 GRADING NOTES:**

1. ANY CHANGES IN GRADES AND CATCH BASINS REQUIRE THE APPROVAL OF THE TOWN OF NIAGARA-ON-THE-LAKE.
2. FILTER FABRIC TO BE TERRAFIX 270R OR APPROVED ALTERNATE.
3. MAXIMUM GRASSED SLOPE TO BE 3:1. SLOPES GREATER THAN 3:1 TO BE LANDSCAPED WITH LOW MAINTENANCE GROUND COVER.
4. MINIMUM ASPHALT GRADE TO BE 1.0%, MINIMUM GUTTERLINE GRADE TO BE 0.5%
5. CONTRACTOR TO MATCH EXISTING GRADES AT PROPERTY LINE UNLESS OTHERWISE NOTED.
6. ALL DRIVEWAYS FROM PROPERTY LINES FOR THE FIRST 7.5m SHALL BE WITHIN 5% MAX. GRADE, THEREAFTER, ALL DRIVEWAYS SHALL BE WITHIN 10% MAXIMUM GRADES.
7. ALL LANDSCAPED AREAS ARE TO HAVE A MINIMUM 2.0% SLOPE.

**4.0 EROSION AND SEDIMENT CONTROL**

1. CONTRACTOR TO INSTALL EROSION CONTROL MEASURES AS SHOWN PRIOR TO CONSTRUCTION AND MAINTAIN IN GOOD CONDITION UNTIL CONSTRUCTION IS COMPLETED AND VEGETATIVE COVER IS ESTABLISHED.
2. ALL SILT FENCING TO BE INSTALLED PRIOR TO ANY AREA GRADING, EXCAVATING OR DEMOLITION COMMENCING.
3. EROSION CONTROL FENCING TO BE INSTALLED AROUND BASE OF ALL STOCKPILES.
4. EROSION PROTECTION TO BE PROVIDED AROUND ALL STORM AND SANITARY MHs AND CBs.
5. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. CONTRACTOR TO PROVIDE ALL ADDITIONAL EROSION CONTROL STRUCTURES.
6. EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN RESTABILIZED.
7. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE ENGINEER AND THE DEPARTMENT OF PUBLIC WORKS.
8. CONTRACTOR TO CLEAN ROADWAY AND SIDEWALKS OF SEDIMENTS RESULTING FROM CONSTRUCTION TRAFFIC FROM THE SITE EACH DAY.

**4.1 MAINTENANCE RECOMMENDATIONS**

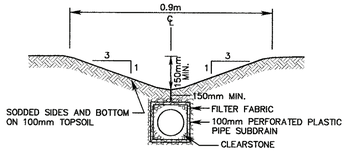
1. EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN ACCUMULATIONS REACH A MAXIMUM OF 1/3 THE HEIGHT OF THE FENCE.
2. OWNER'S REPRESENTATIVE TO MONITOR EROSION CONTROL STRUCTURES TO ENSURE FENCING IS INSTALLED AND MAINTENANCE IS PERFORMED TO CITY REQUIREMENTS.

**5.0 FATO AND TLOF CONSTRUCTION**

1. AS THE HELICOPTER HAS A SKID TYPE LANDING GEAR, IT IS RECOMMENDED THAT THE FATO BE CONSTRUCTED OF A RIDGED PAVEMENT STRUCTURE (I.E. CONCRETE SLABS). AS REQUESTED AND AS INDICATED IN TRANSPORT CANADA'S AND THE US FEDERAL AVIATION ADMINISTRATION PAVEMENT DESIGN STANDARDS, THE TLOF SHALL BE DESIGNED TO WITHSTAND A DYNAMIC LOAD OF 1.5X THE MAXIMUM CERTIFIED TAKE-OFF WEIGHT TRANSMITTED THROUGH THE CONTACT AREAS OF THE SKIDS OF THE CRITICAL HELICOPTER.
2. PRIOR TO GRANULAR PAVEMENT CONSTRUCTION, AS THE HELIPAD WILL BE CONSTRUCTED IN A DRY POND, IT IS RECOMMENDED THAT A COMPACTABLE FILL MATERIAL SHOULD BE PLACED UNDER THE PAVEMENT SUBGRADE OVER THE BOTTOM OF THE POND. SINCE THIS TERRAIN AREA WILL BE A LOW POINT, WHERE THE MOISTURE CONTENT OF SOIL CAN BE HIGH, THE FILL MATERIAL USED SHOULD HAVE A LOW FROST SUSCEPTIBILITY (INCLUDING NO MORE THAN 12% OF FINE PARTICLES PASSING N° 200 SIEVE OR 80MM).
3. ANY FILL REQUIRED FOR CONSTRUCTION OF THE HELIPAD SHOULD BE APPROVED ON SITE AND PLACED IN THIN LIFTS COMPACTED TO 95% MPMDD. THE UPPER 300 MM OF THE PAVEMENT SUBGRADE SHOULD BE COMPACTED TO 98% MPMDD. IT IS NOT RECOMMENDED TO USE THE SILTY CLAY OR SILT AND CLAY NATIVE SOIL FOR FILLING UNDER THE HELIPORT PAVEMENTS STRUCTURES AS IT IS VERY SUSCEPTIBLE TO FROST HEAVE AND LOSS OF BEARING STRENGTH IN SPRING CONDITIONS. ON SITE EXCAVATED MATERIAL SHOULD NOT BE USED FOR FILLING UNDER THE CONCRETE SLABS OR UNDER THE GRASS PAVED AREA OF THE FATO.
4. THE CONCRETE PAVEMENT STRUCTURE OF THE TLOF SHOULD CONSIST OF:

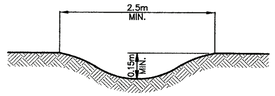
| RECOMMENDED PAVEMENT DESIGN | |
|---|---|
| DEPTH | MATERIAL |
| 200mm | UNREINFORCED CONCRETE SLABS (5m X 5m) |
| 200mm | GRANULAR A BASE |
| 300mm | GRANULAR B TYPE I SUBBASE |
| PARTIAL FROST PROTECTION 700mm | |

5. THE PORTLAND CEMENT CONCRETE AS DELIVERED TO THE SITE SHOULD BE EVALUATED ON THE BASIS OF FLEXURAL STRENGTH OR COMPRESSIVE STRENGTH, SLUMP, AND AIR CONTENT AND SHOULD MEET THE FOLLOWING CONDITIONS:
   - 5.1. AN AVERAGE FLEXURAL STRENGTH OF NOT LESS THAN 4.0 MPA AT 28 DAYS, OR AN AVERAGE COMPRESSIVE STRENGTH OF NOT LESS THAN 32 MPA AT 28 DAYS
   - 5.2. A MAXIMUM WATER/CEMENTING MATERIAL RATIO OF 0.45
   - 5.3. AN AIR CONTENT PERCENT BY VOLUME OF 4 TO 7 FOR CONCRETE WITH A MAXIMUM COARSE AGGREGATE SIZE OF 40 MM
6. THE 10M TLOF AREA SHOULD BE CONSTRUCTED WITH FOUR (4) 5M X 5M SLABS. THE JOINTS SHOULD BE SAW CUT AT 5M SPACING FOR CONTRACTION JOINTS. NO LOAD TRANSFER DEVICES ARE NEEDED FOR THE DIMENSION OF THE PROPOSED SLABS.THE CONCRETE SHOULD BE CURED BY PROTECTING IT AGAINST LOSS OF MOISTURE, RAPID TEMPERATURE CHANGE, AND MECHANICAL DAMAGE.
7. ALL JOINTS MUST BE SAW CUT AT A MINIMUM OF 50 MM DEEP AS SOON AS PRACTICAL AFTER PLACEMENT. A 12MM WIDE (PLUS 5MM CHAMFERED EDGES AT 45°) BY 22MM DEEP RESERVOIR SHOULD BE SAW CUT LATER FOR SEALANT. PRIOR TO SEALING THE JOINTS, A 12MM DIAMETER BACKER RODE SHOULD BE PLACED AT THE BOTTOM THE RESERVOIR. THE JOINTS COULD BE FILLED WITH HOT OR COLD JOINT-SEALING MATERIAL BEFORE THE PAVEMENT IS OPENED TO TRAFFIC AND AS SOON AFTER COMPLETION OF THE CURING PERIOD AS IS FEASIBLE.
8. THE GRANULAR A BASE MEETING OPSS 1010 WILL HAVE TO BE PLACED IN TWO (2) 100MM THICK LIFTS AND COMPACTED TO A MINIMUM 100% MODIFIED PROCTOR MAXIMUM DRY DENSITY (MPMDD). THE GRANULAR B SUBBASE MEETING TYPE I GRANULAR B PER OPSS 1010 PASSING 100% 4.75MM SIEVE SHOULD BE PLACED IN MAXIMUM 150 MM THICK LIFTS AND COMPACTED TO A MINIMUM 95% MPMDD.
9. PLEASE REFER TO TECHNICAL MEMORANDUM DATED JULY 8, 2014 FOR ADDITIONAL INFORMATION AND OTHER RECCOMENDATIONS.

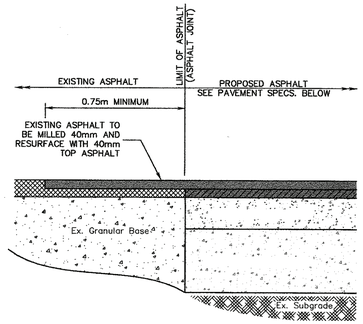



SUBDRAIN TO BE PROVIDED FOR SWALES AS NOTED

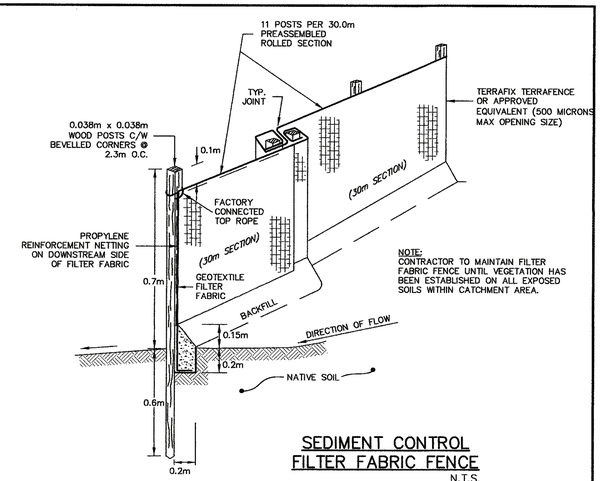
## TYPICAL SWALE X-SECTION
N.T.S.




## TYPICAL DRAINAGE SWALE
N.T.S.




## ASPHALT LAP JOINT DETAIL
N.T.S.




NOTE:
CONTRACTOR TO MAINTAIN FILTER FABRIC FENCE UNTIL VEGETATION HAS BEEN ESTABLISHED ON ALL EXPOSED SOILS WITHIN CATCHMENT AREA.

## SEDIMENT CONTROL FILTER FABRIC FENCE
N.T.S.

**PAVEMENT STRUCTURE**

PAVEMENT INFORMATION PROVIDED FOR REFERENCE ONLY.
FOR DETAILED SPECIFICATION, REFER TO "PAVEMENT REPORT" PREPARED BY LVM INC. (SEPT. 29, 2011), AND SUPPLEMENTARY TECHNICAL MEMORANDUM PREPARED BY LVM INC. (FEB 17, 2012).

**LIGHT DUTY**

50mm – HL3 SURFACE COURSE
150mm – CRUSHED CONCRETE (2mm MINUS) OR CRUSHER-RUN LIMESTONE MEETING GRANULAR "A" SPECIFICATIONS BASE
250mm – CRUSHED CONCRETE (50mm MINUS) OR CRUSHER-RUN LIMESTONE MEETING GRANULAR "B" TYPE II SPECIFICATIONS SUBBASE

**HEAVY DUTY**

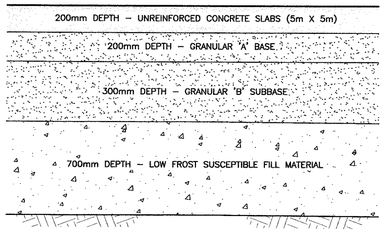
40mm – HL3 SURFACE COURSE
50mm – HLB (15% RAP) BINDER COURSE
150mm – CRUSHED CONCRETE (25mm MINUS) OR CRUSHER-RUN LIMESTONE MEETING GRANULAR "A" SPECIFICATIONS BASE
250mm – CRUSHED CONCRETE (50mm MINUS) OR CRUSHER-RUN LIMESTONE MEETING GRANULAR "B" TYPE II SPECIFICATIONS SUBBASE

**PERMEABLE PAVING (PEDESTRIAN AREA)**

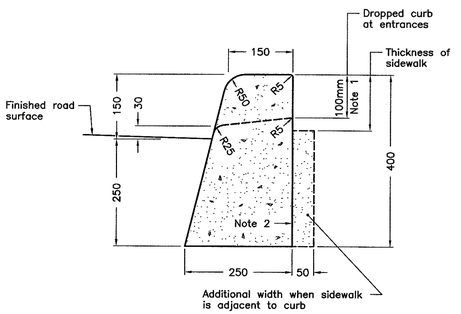
- SUB-EXCAVATE TO THE DEPTH REQUIRED FOR PAVEMENT INSTALLATION, MINIMUM 430 MM;
- THE EXPOSED SUBGRADE SHOULD BE CAREFULLY PROOF-ROLLED AND ANY SOFT OR WET SPOTS PROPERLY REPAIRED WITH APPROVED MATERIAL;
- GEOTEXTILE FABRIC SHOULD BE PROVIDED BETWEEN GRANULAR BASE AND SUBGRADE LAYER IN ACCORDANCE WITH OPSS 1860.
- INSTALL PVC PERFORATED DRAINAGE PIPE OF 100 MM DIAMETER, WRAPPED IN KNITTED SOCK GEOTEXTILE AND CONNECT TO NEAREST CATCH-BASIN. SEEING THAT SUBGRADE SOIL IS PREDOMINANTLY SILTY CLAY IN THIS AREA AND INFILTRATION RATE OF THIS KIND OF SOIL IS VERY LOW, HENCE IT IS RECOMMENDED THAT THE SUB-DRAINS BE INSTALLED EXTENDING PARTIALLY INTO THE SUBGRADE. INSTALLATION OF SUB-DRAINS SHOULD BE COMPLETED IN ACCORDANCE WITH OPSS 405.
- CONSTRUCT THE PAVEMENT BASE WITH 300 MM OF OPEN GRADED, CRUSHED, ANGULAR GRANULAR MATERIAL MEETING ASTM C 33 REQUIREMENTS FOR NO. 57 GRANULAR BASE OR 300 MM OF OPEN GRADED DRAINAGE LAYER – OGDL (AGGREGATE ONLY) IN ACCORDANCE WITH OPSS 320 GRADATION REQUIREMENTS. PLACE IN LIFTS NOT EXCEEDING 150 MM LOOSE THICKNESS. COMPACT TO 100 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
- CONSTRUCT THE PAVER BEDDING LAYER WITH 50 MM OF CRUSHED, ANGULAR, 6 MM NOMINAL CHIP STONE BEDDING MATERIAL IN ACCORDANCE WITH ASTM C 33 REQUIREMENTS FOR NO. 8 CHIP (OR EQUIVALENT GRANULAR BEDDING MATERIAL RECOMMENDED BY THE MANUFACTURER).
- PLACE 80 MM THICK PERMEABLE PAVER WITH INSTALLATION/CONSTRUCTION IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.

**GRASS PAVING (EMERGENCY FIRE ACCESS)**

- SUB-EXCAVATE TO THE DEPTH REQUIRED FOR GRASSPAVE2 SYSTEM INSTALLATION, APPROXIMATELY 300 MM;
- THE EXPOSED SUBGRADE SHOULD BE CAREFULLY PROOF-ROLLED AND ANY SOFT OR WET SPOTS PROPERLY REPAIRED WITH APPROVED MATERIAL;
- GEOTEXTILE FABRIC (TERRAFIX 270R OR EQUIVALENT) SHOULD BE PROVIDED BETWEEN THE GRANULAR BASE AND SUBGRADE LAYER IN ACCORDANCE WITH OPSS 1860.
- CONSTRUCT THE PAVEMENT BASE WITH 200 MM OF OPSS 1010 GRANULAR A BASE. IT IS RECOMMENDED THAT GRANULAR A BE PRODUCED FROM PIT RUN SAND AND GRAVEL MATERIAL. IF CRUSHER RUN LIMESTONE IS PROPOSED FOR USE, IT WILL REQUIRE ADDITION OF SHARP SAND (UP TO 33% BY VOLUME) TO ENSURE LONG-TERM POROSITY. PLACE IN LIFTS NOT EXCEEDING 150 MM LOOSE THICKNESS. COMPACT TO 100 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD); AND
- INSTALL THE GRASSPAVE2 OR EQUIVALENT PAVEMENT SYSTEM AS PER MANUFACTURER'S REQUIREMENTS.

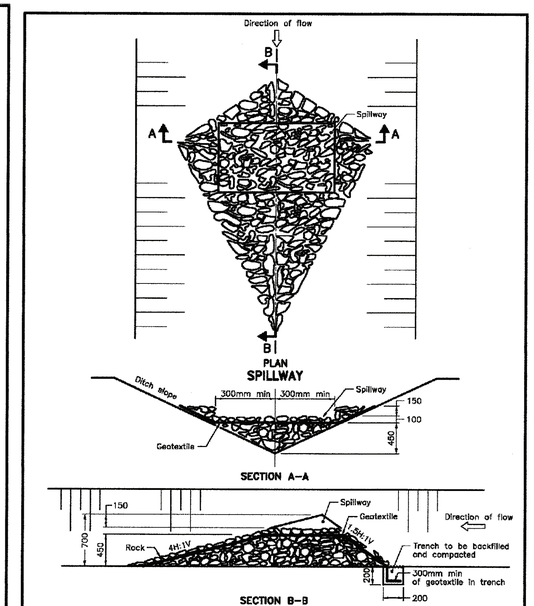



## TLOF PAVEMENT DESIGN DETAIL
N.T.S.




NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

| ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2012 | Rev 2 |
|---|---|---|
| CONCRETE BARRIER CURB | | |
| | OPSD 600.110 | |




NOTE:
A All dimensions are in millimetres unless otherwise shown.

| ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2006 | Rev 1 |
|---|---|---|
| ROCK FLOW CHECK DAM V-DITCH | | |
| | OPSD 219.210 | |


REBANKS Pepper Littlewood Architects Inc.
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North:

NORTH

Seal:

LICENSED PROFESSIONAL ENGINEER
K. R. RAMSEWAK
100100928
Sep 29/14
PROVINCE OF ONTARIO

| # | REVISION | DATE |
|---|---|---|
| 10 | | |
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| 4 | | |
| 3 | Issued for Tender / SPA | 2014/09/29 |
| 2 | Issued for Client Review | 2014/09/15 |
| 1 | Issued for Client Review | 2014/07/28 |


Consultant:
MTE
25 YEARS 1985-2010
Site Division
(905)639-2552 www.mte85.com


Client:
Government of Canada / Gouvernement du Canada

Project:
NIAGARA OFFICE ADMINISTRATION FACILITY

Location:
Niagara-on-the-Lake, Ontario

| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 1322-003 |
| Tender: | 2012/04/10 |
| Date: | Sep.21/11 |
| Scale: | 1:500 |
| Drawn By: | AXG |
| Checked By: | SVF |

Drawing Title:
NOTES AND DETAILS PLAN

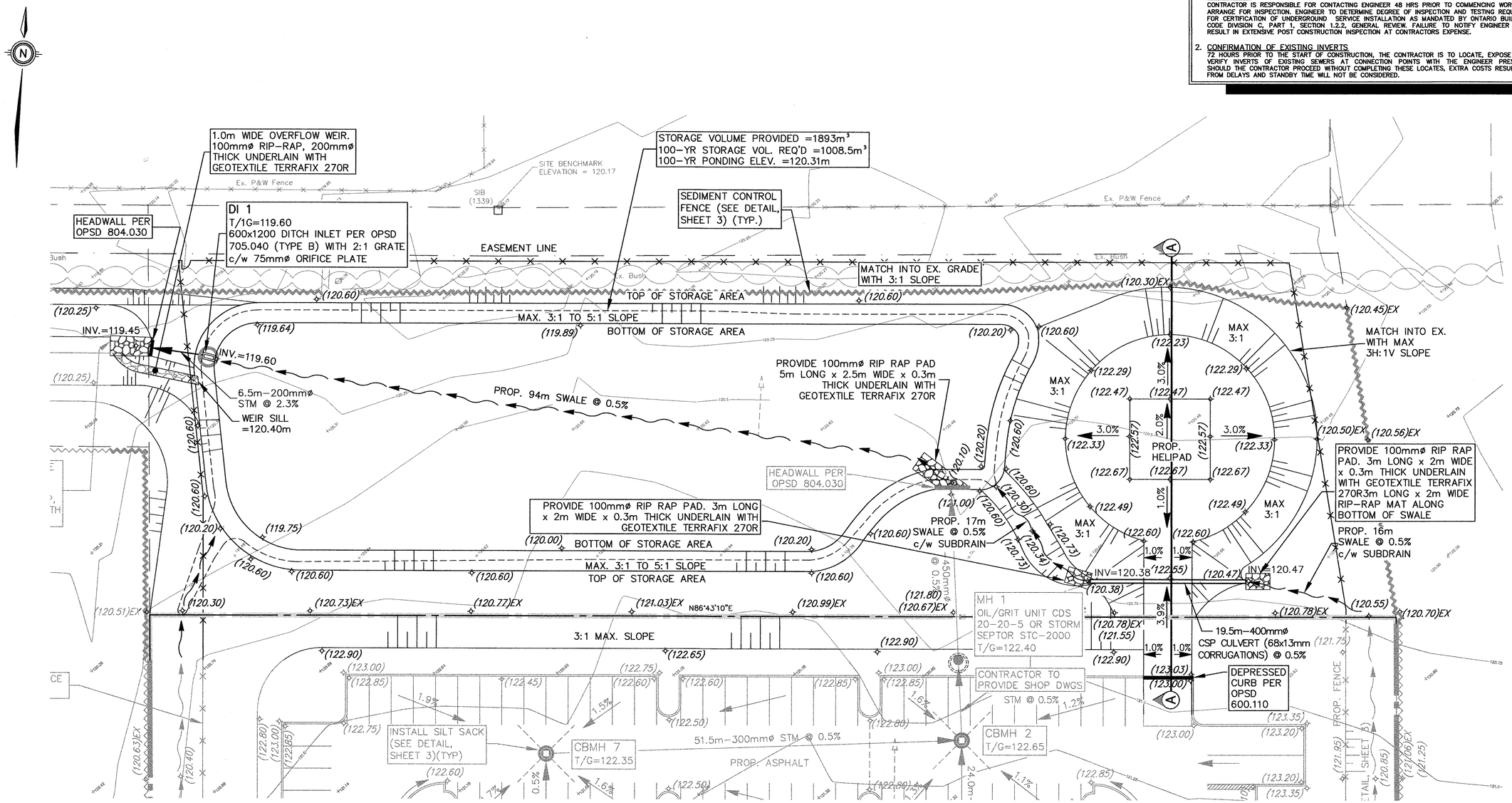
Drawing:
C2.3


September 26, 2014 – 4:39 p.m. – Plotted By: egulkin

MTE Computer Dwg No. 35220-300-C2

**NOTES TO CONTRACTOR:**

1. **INSPECTION**
   CONTRACTOR IS RESPONSIBLE FOR CONTACTING ENGINEER 48 HRS PRIOR TO COMMENCING WORK TO ARRANGE FOR INSPECTION. ENGINEER TO DETERMINE DEGREE OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF UNDERGROUND SERVICE INSTALLATION AS MANDATED BY ONTARIO BUILDING CODE DIVISION C, PART 1, SECTION 1.2.2, GENERAL REVIEW. FAILURE TO NOTIFY ENGINEER WILL RESULT IN EXTENSIVE POST CONSTRUCTION INSPECTION AT CONTRACTORS EXPENSE.
2. **CONFIRMATION OF EXISTING INVERTS**
   72 HOURS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS TO LOCATE, EXPOSE AND VERIFY INVERTS OF EXISTING SEWERS AT CONNECTION POINTS WITH THE ENGINEER PRESENT. SHOULD THE CONTRACTOR PROCEED WITHOUT COMPLETING THESE LOCATES, EXTRA COSTS RESULTING FROM DELAYS AND STANDBY TIME WILL NOT BE CONSIDERED.




TOWN OF NIAGARA-ON-THE-LAKE APPROVAL

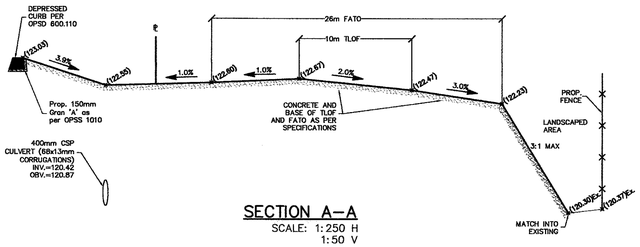
| PUBLIC WORKS | |
|---|---|
| SIGNATURE | DATE |
| NAME | POSITION |
| **FIRE & EMERGENCY SERVICES** | |
| SIGNATURE | DATE |
| NAME | POSITION |

**LEGEND OF EXISTING FEATURES**

- SITE BOUNDARY
- EXISTING SPOT ELEVATIONS/CONTOURS
- EXISTING CURB
- EXISTING FENCE
- EXISTING EMBANKMENT (SLOPE AS NOTED)
- REMOVALS
- EXISTING DIRECTION OF DRAINAGE/SWALE

**LEGEND OF PROPOSED FEATURES**

- x (326.00) / T/G=326.00 / FFE=326.00 — PROPOSED SPOT ELEVATIONS (EX =MAINTAIN EXISTING; T/G =TOP OF CASTING/GRATE; INV =INVERT ELEVATION; FFE =FINISHED FLOOR ELEVATION)
- 1.0% — DIRECTION OF DRAINAGE/SWALE
- DRAINAGE SPLIT (RIDGE)
- RETAINING WALL
- (DROP CURB) CONCRETE CURB / CONC. CURB & GUTTER
- (TOP) 3:1 (BOTTOM) EMBANKMENT (SLOPE AS NOTED)
- FENCE
- SEDIMENT CONTROL FENCE (SEE DETAIL)
- SILT SACK
- CONSTRUCTION ACCESS (SIZE AS NOTED)
- RIP RAP (SIZE & TYPE AS NOTED)
- OVERHEAD DOOR
- MAN DOOR
- PROPOSED DOWNSPOUT
- OVERLAND FLOW ROUTE (MAJOR STORM)
- MH — 21.3m-300mmø STM @ 1.30% — STORM SEWER




**SECTION A-A**
SCALE: 1:250 H
1:50 V

REBANKS Pepper Littlewood Architects Inc.
402-1491 Yonge Street, Toronto, Ontario, M4T 1Z4
Tel (416)964-7163 Fax (416)964-5817 www.rebanks.ca



North:

NORTH

Seal:

LICENSED PROFESSIONAL ENGINEER K. R. RAMSEWAK 100100928 Sep 29/14 PROVINCE OF ONTARIO

| # | REVISION | DATE |
|---|---|---|
| 12 | | |
| 11 | | |
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| 5 | | |
| 4 | | |
| 3 | Issued for Tender / SPA | 2014/09/29 |
| 2 | Issued for Client Review | 2014/09/15 |
| 1 | Issued for Client Review | 2014/07/28 |

Consultant:

MTE 25 YEARS 1985-2010
Site Division
(905)639-2552 www.mte85.com

Client:

Government of Canada / Gouvernement du Canada

Project:

NIAGARA OFFICE ADMINISTRATION FACILITY

Location:

Niagara-on-the-Lake, Ontario

| | |
|---|---|
| Project Manager: | PJ |
| Project Number: | 1322-003 |
| Tender: | 2012/04/10 |
| Date: | Sep.21/11 |
| Scale: | 1:250 |
| Drawn By: | MXM |
| Checked By: | KRR |

Drawing Title:

SITE SERVICING & GRADING PLAN

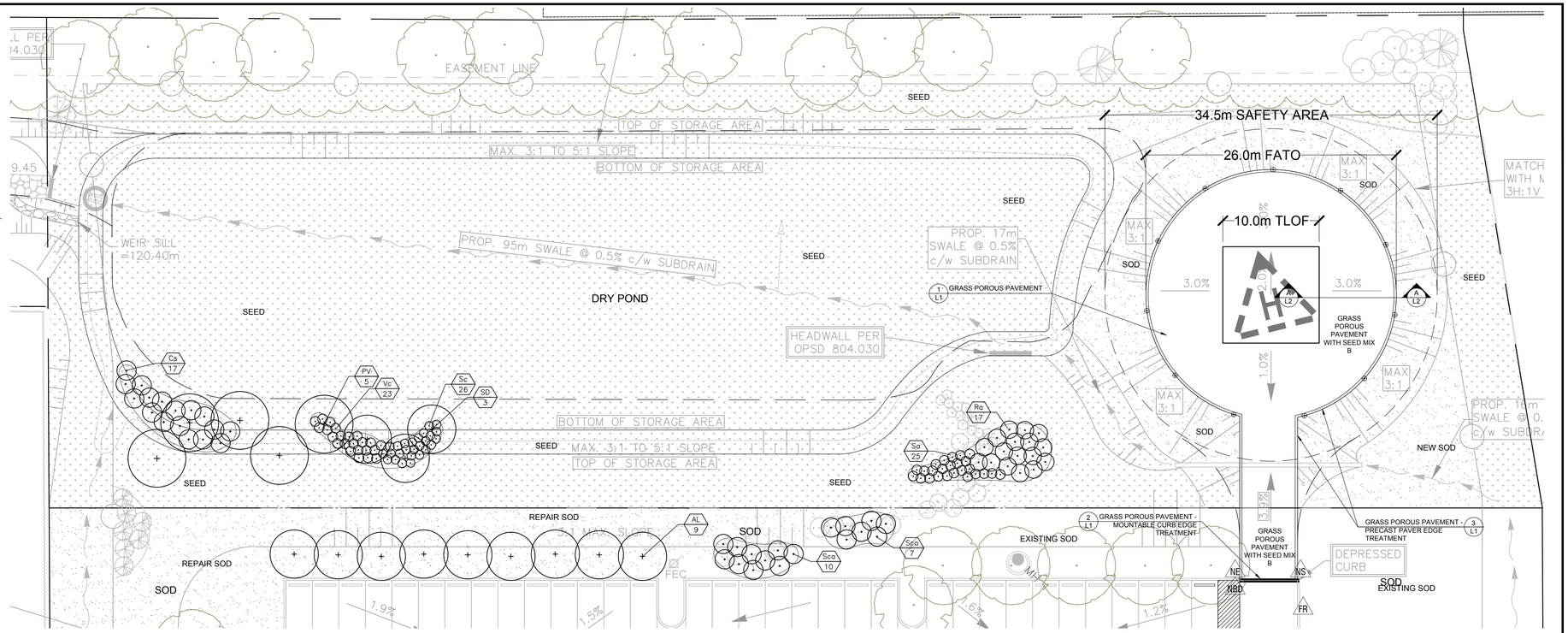
Drawing:

C2.5

September 26, 2014 - 4:54 p.m. - Plotted By: agustin

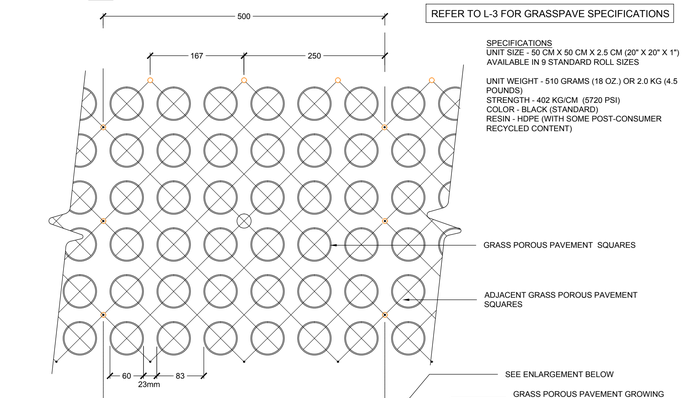
## General Notes

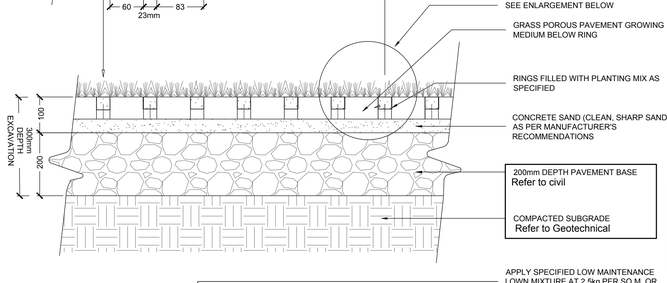
1. Contractor shall report any discrepancies between the drawings and site conditions prior to commencement of the work to the Departmental Representative.
2. All utility locates are the responsibility of the Contractor. Hand dig within the limits recommended by the service utility. Utility conflicts with proposed tree locations must be reported immediately to the Departmental Representative.
3. For Grading information refer to Civil drawings. For servicing information refer to drawings by Civil.
4. Landscape drawings show engineering information for design purposes only. Do not construct engineering works from these drawings.
5. Contractor shall repair and restore to the original state all existing sodded, seeded and landscaped areas damaged during construction.
6. Contractor to verify the extents of existing work prior to construction.



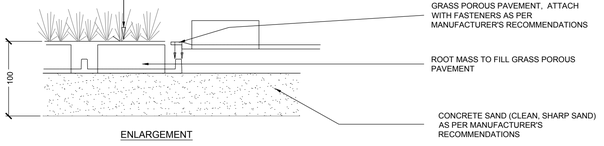

PLAN

REFER TO L-3 FOR GRASSPAVE SPECIFICATIONS




SECTION




ENLARGEMENT

1 GRASS POROUS PAVEMENT
N.T.S.

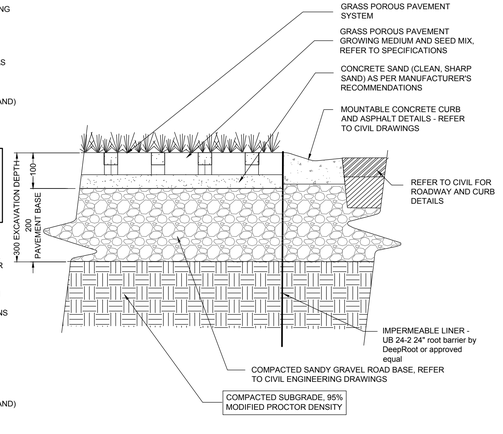
## HELIPORT PLANT LIST

### Deciduous Trees

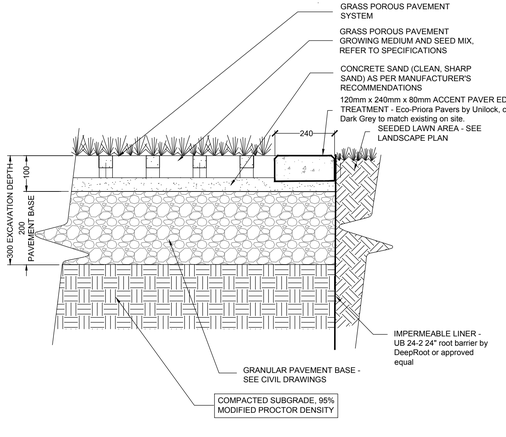
| Key | Qty. | Botanical Name | Common Name | Size | Height | Spacing (m) | Comments |
|---|---|---|---|---|---|---|---|
| AL | 9 | Amelanchier laevis | Alleghany Serviceberry | 175cm ht. clump | 5m | 5 | W.B. |
| PV | 5 | Prunus virginiana | Chokecherry | 50mm cal. | 7m | 6 | W.B. |
| SD | 3 | Sorbus decora | Showy Mountain Ash | 50mm cal. | 8m | 5 | W.B. |

### Deciduous Shrubs

| Key | Qty. | Botanical Name | Common Name | Size | Height | Spacing (m) | Comments |
|---|---|---|---|---|---|---|---|
| Cs | 17 | Cornus sericea | Red-Osier Dogwood | 60cm | 2m | 1.80 | Cont. |
| Ra | 17 | Rhus aromatica | Fragrant Sumac | 60cm | 1.5m | 1.50 | Cont. |
| Sa | 25 | Spiraea alba | Meadowsweet | 60cm | 1.5m | 0.90 | Cont. |
| Sc | 26 | Salix candida | Sage-Leaved Willow | 60cm | 2m | 0.90 | Cont. |
| Sca | 17 | Sambucus canadensis | Elderberry | 80cm | 3m | 2.00 | Cont. |
| Vc | 23 | Viburnum cassinoides | Witherod | 60cm | 1.5m | 1.00 | Cont. |




2 HELIPORT GRASS POROUS PAVEMENT EDGE AT MOUNTABLE CURB
N.T.S.




3 HELIPORT GRASS POROUS PAVEMENT WITH PRECAST PAVER EDGING
N.T.S.

## Seeding Notes

Time Of Seeding
Seeding should be performed between Oct 15th and Nov 15th. Alternatively, between April and early June. Spring seeding may not establish as effectively. If moisture is not adequate some of the seed may go dormant and not germinate until the spring the following year.

Site Preparation
A spring application of glyphosate followed by a second application in early fall prior to seeding will control most weed seeds and unwanted vegetation. Seeding must not commence earlier than 10 days after applying glyphosate. Good weed control prior to planting will facilitate a quicker stand establishment of both native grasses and wildflowers. Soil shall be cultivated to 2.5 cm (1") depth just prior to seeding.

Nurse Crop
A nurse crop of Annual Ryegrass shall be seeded at the rate recommended by the supplier or 22 kgs/ha, whichever is greater. Seeding of the permanent crop shall not be preformed until at least 14 days after nurse crop seeding, or the nurse crop has achieved a height of 20mm, whichever occurs first.

Seeding
Seeds should be mixed with a carrier of similar weight (sawdust, sand or kitty litter) to ensure uniform delivery of seed and even seed distribution. Seeding shall be performed immediately after final cultivation, using a cyclone or drop-type seeder, at rates recommended by the seed supplier. 2 passes shall be made with the seeder, each at the half rate. Seeding must be followed by rolling to make sure the seed comes into good contact with the soil. Hydro-seeding is NOT PERMITTED as it buries the smaller seeds too deep and causes irregular germination of seeds. Seeding into wet substrates is also NOT PERMITTED.

Acceptance
Acceptance will be considered in May following a fall seeding and in October following a spring seeding. Satisfactory seeding at time of inspection will show evidence of vigorous growth with uniform establishment of plants covering at least 95% of the seeded area, with no bare areas greater than 0.25 m2.

### Seed Mix A - Native Prairie Meadow Mix

| Botanical Name | Common Name | % of Mix |
|---|---|---|
| *Aster novae-anglaie* | New England Aster | 2% |
| *Rudbeckia hirta* | Black Eyed Susan | 10% |
| *Coreopsis lanceolata* | Lance Leaf Coreopsis | 10% |
| *Liatris spicata* | Prairie Blazing Star | 4% |
| *Rudbeckia laciniata* | Green-headed Conellower | 10% |
| *Monarda Fistulosa* | Wild Bergamot | 4% |
| *Oenothera Lamarackiana* | Evening Primrose | 10% |
| Andropogon scoparius | Little Bluestem | 25% |
| Bouteloua Gracilis | Blue Grama | 25% |

Seeding Rates — Shown As:

16 kg/ha Native Prairie Meadow Mix
22kg/ha Lolium *multiflorum* (Annual Ryegrass)

### Seed Mix B - RTF Seed

Common Name
Rhizomatous Tall Fescue

Seeding Rates — Shown As:

336 kg/ha (300 lbs/acre)


**REBANKS Pepper Littlewood Architects Inc.**
402 -1491 Yonge Street, Toronto, Ontario, M4T 1Z4
Tel (416)964-7163 Fax (416)964-5817 www.rebanks.ca




North:

Seal: ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — JENNIFER HACKER — MEMBER — 29 Sept. 2014

| # | REVISION | DATE |
|---|---|---|
| 4 | ISSUED FOR TENDER/SPA | SEPT 29/14 |
| 3 | ISSUED FOR CLIENT REVIEW | SEPT 15/14 |
| 2 | ISSUED FOR CLIENT REVIEW | JULY 30/14 |
| 1 | ISSUED FOR CLIENT REVIEW - RELOCATED TREES | JULY 16/14 |


Consultant:
GSP group
201-72 Victoria Street South, Kitchener, Ontario N2G 4Y9, T 519 568 8083, F 519 568 8643
29 Rebecca Street, Suite 200, Hamilton, Ontario L8R 1B3, T 905 572 7477
www.gspgroup.ca


Client: Government of Canada / Gouvernement du Canada

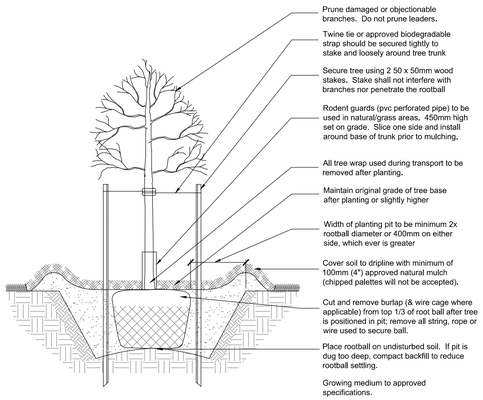
Project:
NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

Location:
Niagara-on-the-Lake, Ontario

| | |
|---|---|
| Project Manager: | ST |
| Project Number: | GSP #11129 |
| Tender: | |
| Date: | JULY 8, 2014 |
| Scale: | 1:250 |
| Drawn By: | CZ/ST |
| Checked By: | |

Drawing Title:
LANDSCAPE PLAN

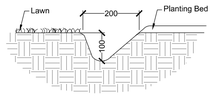
Drawing:
L-1



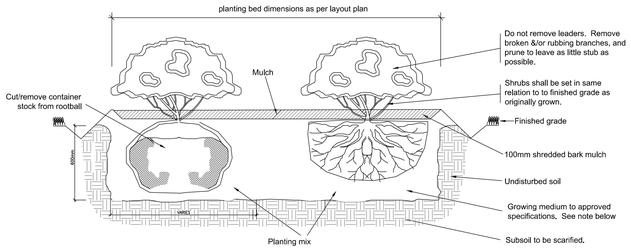

Notes

1. Growing medium mix: 4 parts topsoil, 1 part compost, 1 part shredded peat & application of high phosphorous fertilizer (0-20-0)
2. Plant material shall be thoroughly watered at time of planting.
3. Plant material shall be set plumb in the middle of the pit.
4. Tree shall bear same relation or slightly higher to finished grade as originally grown.
5. Plant stock moved while in leaf shall be covered while in transit. Roots should be kept moist until planted. Trees in leaf to be treated with anti-desicant.
6. Dimensions are in millimeters unless otherwise noted.
7. Staking is to occur only at the direction of the landscape architect.
8. 100mm high saucer except when planting in bed.

1 Deciduous Tree Planting B.B/W.B - Up to 80mm Caliper
N.T.S.



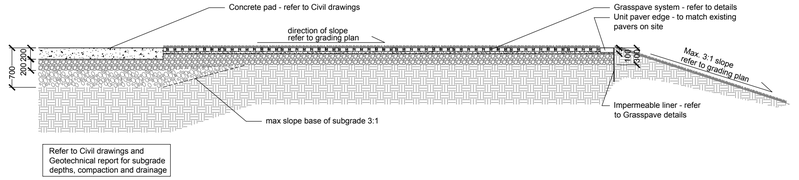

2 Typical Planting Bed Edge
Scale 1:10




Notes

1. Growing medium mix: 4 parts topsoil, 1 part compost, 1 part shredded peat & application of high phosphorous fertilizer (0-20-0)
2. Plant material shall be thoroughly watered at time of planting.
3. Plant material shall be set plumb in the middle of the pit.
4. Tree shall bear same relation or slightly higher to finished grade as originally grown.
5. Plant stock shall be covered while in transit. Roots should be kept moist until planted. Trees to be treated with anti-desicant.
6. Dimensions are in millimeters unless otherwise noted.
7. Staking is to occur only at the direction of the landscape architect.
8. 100mm high saucer except when planting in bed.

3 Shrub Planting Detail
Scale NTS




Refer to Civil drawings and Geotechnical report for subgrade depths, compaction and drainage

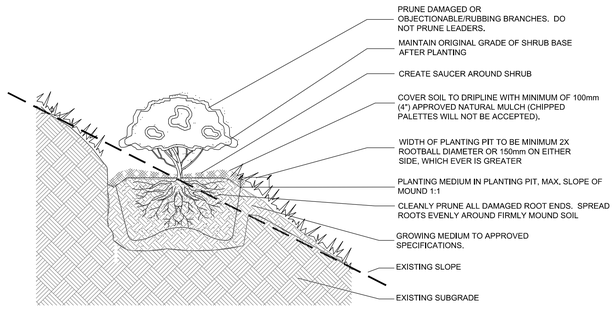
A Cross Section - Helipad and Grasspave
Scale 1:50




Notes:

1. All dimensions in millimetres unless otherwise noted.
2. Backfill with approved growing medium
3. Planting pit depth will be the same depth as the root ball and 900 or 1.5 times the width - whichever is greater.
4. Wire twisted around tree guard will be twisted back to tree side of guard.
5. Plant tree 75 above existing adjacent grade to accommodate for settlement.
6. Provide drainage for planting pit in impermeable soil.

4 Deciduous Tree Planting On A Slope
N.T.S.




NOTES
1. GROWING MEDIUM MIXTURE: 4 PARTS TOPSOIL, 1 PART COMPOST, 1 PART SHREDDED PEAT & APPLICATION OF HIGH PHOSPHOROUS FERTILIZER (0-20-0).
2. PLANTINGS SHALL BE THOROUGHLY WATERED IMMEDIATELY AFTER PLANTING & PRIOR TO MULCHING.
3. SHRUBS ARE TO BE SPACED AS DIRECTED.
4. ALL DIMENSIONS ARE IN MILLIMETERS.

5 B&B/Container Stock Shrub Planting - On Slope
N.T.S.

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North:

Seal:

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — JENNIFER HACKETT — 29th Sept. 2014 — MEMBER

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| Drawn By: | CZ/ST |
| Checked By: | |

Drawing Title:

LANDSCAPE DETAILS AND NOTES

Drawing:

L-2

GROWING MEDIUM REQUIREMENTS:

1. Contractor to provide soil testing results of growing medium to Landscape Architect for approval prior to installation.

2. Contractor shall prepare planting beds and tree pits with approved growing medium for approval prior to installation of plant material.

3. Contractor shall pay all costs to correct growing medium and replacement of plant material if specified tests, amendments, and written approval of the Landscape Architect are not obtained.

**1.0 GROWING MEDIUM TESTING:**

1. Growing mediums (Topsoil; Planting Mixes) and organic amendments must be tested by an OMAFRA accredited agency and approved prior to use. Test topsoil for P, K, Ca and Mg, minor element values, soluble salt content, organic matter, texture and pH value appropriate for the establishment and growth of ornamental nursery stock. Submit test results and analysis including recommendations for amendments and fertilizer to the to the Departmental Representative.

**2.0 TOPSOIL:**

1. Topsoil shall be fertile, friable, topsoil, free of: fragments larger than 75 mm in size; stones over 30 mm in diameter; debris; plants or their roots; sticks; noxious weed plants/stolons/seeds; salts; soil sterilants; chemical contaminants; or other materials detrimental to plant growth.

.1 All Topsoil shall have the following characteristics: textural class of sandy loam, loam or silt loam; pH range of 6 - 7.8; 2 - 2.5% Organic Matter; less than 0.5 mmhos/cm (millisiemens/cm) Total Salts. Topsoil not meeting the minimum specification must be amended and retested. Fertilizer and mineral amendments must be made as per soil testing agency recommendations.

.2 Fertilizer and amendments must be made as per soil testing agency recommendations.

.3 All Topsoil for the Intensive-use lawn areas shall be sandy loam textural class only.

.4 Topsoil shall not be moved, delivered or worked on while in a frozen, wet or muddy state or condition.

**3.0 GROWING MEDIUM - PLANTING MIXES:**

.1 Planting Mix (where specified): shall be thoroughly combined prior to placement in planting bed areas to the following proportions: 4 parts approved topsoil, 1 part compost, 1 part shredded peat moss and an application of high phosphorous fertilizer (0-20-0).

.2 Mixes containing a significant amount of peat moss shall not be permitted to dry out. The moisture content of the peat moss at the time of mixing shall be not less than 60% to 75%.

**4.0 FERTILIZER AND AMENDMENTS:**

.1 Organic Soil Additive: “Gro_Bark” Fine composted Pine mulch or an approved alternative.

.2 Fertilizer: complete commercial fertilizer with 50% of the elements derived from organic sources.

.3 Peatmoss: decomposed plant material, fairly elastic and homogenous, free of decomposed colloidal residue, wood, sulphur and iron and of brown colour containing minimum 60% organic matter by weight, moisture content not exceeding 15% and pH value of 3.4 - 5.5.

.4 Compost & Manure: shall meet the standards found in the Interim Guidelines for the Production and Use of Aerobic Compost in Ontario published by the Ontario Ministry of Environment and Energy (MOEE), and shall be virtually free from all viable weed seeds, or other plant reproductive parts, pathogens, chemicals or toxic contaminates. Manure shall be well rotted, unbleached cattle manure, free from harmful chemicals and other injurious substances, at least eight months old, but not more than two years old and with no more than 25% straw, leaves or other materials. Physical contaminants such as rock, plastic, metal or glass shall be less than 0.5%. Total carbon to nitrogen ratio in the resulting growing medium shall not exceed 30:1.

.5 Lime: Limestone containing not less than 8% of calcium and magnesium carbonates combined, finely ground to pass a 10 mesh sieve with at lease one half passing a 100 mesh sieve. Rate of application shall be determined after determining the pH of the topsoil.

.6 Bonemeal: raw bonemeal, finely ground with a minimum analysis of 4% nitrogen and 20% phosphoric acid.

.7 Sand: sharp, clean sand, to OPSS 1002_3.

SWM PLANTING NOTES

1. All plant material shall be No.1 nursery grown, meeting specifications for size, height, spread, grading, quality, method of cultivation, and balling and burlap specifications as set out in the latest Guide Specification for Nursery Stock prepared by the CNLA.

2. No substitutions in species, cultivar, quantity, size or condition will be permitted without the written approval of the Departmental Representative. Any unapproved substituted material will be required to be removed from the site.

3. Any inconsistencies found in the quantities as shown on the plan and the plant list shall immediately be reported to the Landscape Architect.

4. Stake-out of plant locations and delivered plant material to be approved by Landscape Architect prior to placement.

5. Native or Imported topsoil shall be tested as specified and approved by the Landscape Architect prior to placement. Planting mix, where indicated, shall follow the mix specifications.

6. Where a minimum of 300mm of topsoil has been placed during the earthworks construction, no additional topsoil is required. If the topsoil depth is found to be less than 300mm, additional topsoil must be added or subsoil replaced to give a minimum depth of 300mm.

7. Provide 400mm minimum depth of approved topsoil or planting mix in all pland beds, unless otherwise noted. All beds shall be mulched with approved mulch to a minimum depth of 75mm, unless otherwise noted. Depths shall be those achieved under light compaction. Areas to be sodded or seeded shall be provided with 150 mm of approved topsoil, compacted to 85% SPD.

8. No bare-root planting shall be permitted between May 15 and October 15.

9. Seeding shall be warrantied after Acceptance until May following a fall seeding and until October following a spring seeding. Satisfactory seeding at time of inspection shall show evidence of a vigorous growth with uniform establishment of plants covering at least 90% of the seeded area with no bare areas greater than 0.5 m2.

10. Sodding shall be maintained and warrantied until one cut has been completed and the work has been approved for Acceptance. Satisfactory sodding at time of inspection shall show evidence of a vigorous growth with uniform establishment of sod with no dead areas greater than 0.5 m2.

11. The contractor shall provide maintenance immediately after the plants are installed and continue throughout the entire warranty period. Maintenance requirements shall include all procedures consistent with proper horticultural practices to ensure normal, vigorous, and healthy growth of all material planted. All stakes, wire, hose, and other accessories must be removed prior to final warranty inspection.

12. All plant material used as replacements for unacceptable material shall be of the same quality and requirements prescribed for the original material. Replacements shall be made once under the warranty.

13. Plant material shall be thoroughly watered at the time of planting. Water a minimum of once a week with a root probe for the first four weeks, when required thereafter and in sufficient quantities to saturate the root system and to ensure sufficient moisture for vigorous plant material growth. Ensure adequate moisture in the rootball at time of first frost.

14. At the time of final warranty acceptance, all material must be in a healthy, vigorous condition. Beds and tree pits must be free of weeds, rubbish, and debris.

15. All plant material shall be maintained and warranted for a period of two years from the date of Acceptance, unless otherwise noted. All plant material used as replacements for unacceptable material shall be of the same quality and requirements prescribed for the original material including the applicable warranty period. Replacements shall be made once under the warranty.

**GRASS PAVING (HELIPORT) GENERAL NOTES**

1. **PRE-CONSTRUCTION ASSESSMENT:** Prior to undertaking any pavement construction work, the pavement drainage and/or sub-drainage should be assessed, noting that provision of proper drainage is fundamental to the performance of the pavement structure to mitigate optional frost related movements and minimize seasonal loss of subgrade support (subgrade softening in the spring).
2. **SUB-EXCAVATE:** Sub-excavate to the depth required for Porous Grass Pavement system installation, approximately 300mm. Refer to Geotechnical report.
3. **SUB-GRADE:** The exposed subgrade should be carefully proof-rolled and any soft or wet spots properly repaired with approved material. Refer to civil specifications and geotechnical report. Provide compaction test results for approval.
4. **GEOTEXTILE:** Geotextile fabric (non-woven as specified) should be provided between the granular base and subgrade layer in accordance with OPSS 1860.
5. **PAVEMENT BASE:** Construct the pavement base with 200mm of OPSS 1010 Granular A base. It is recommended that Granular A be produced from pit run sand and gravel material. If crusher run limestone is proposed for use, it will require addition of sharp sand (up to 33% by volume) to ensure long-term porosity. Place in lifts not exceeding 150mm loose thickness. Compact to 100 percent Standard Proctor Maximum Dry Density (SPMDD).
6. **POROUS GRASS PAVEMENT:** Install the porous grass pavement system as per manufacturer's requirements.
7. **SURFACE SLOPE:** Surface slope shall be a minimum of 1% and a maximum of 5%.

**PART 1-GENERAL**

**Description of Work**

**A. Work Included:**
1. Provide and install sandy gravel road base as per Geotechnical Engineer's recommendations and/or as shown on drawings, to provide adequate support for project design loads.
2. Provide Porous Grass Pavement products including grass paving units, soil polymer, and installation per the manufacturer's instructions
3. Provide and install clean sharp sand to fill the grass paving units, when needed.
4. Provide and install grass by using sod or hydroseeding.

**B. Related Work:**
1. Subgrade preparation under Section 31 20 00 Earth Moving (02200 - Earthwork).
2. Utilities and subsurface drainage - Section 33 40 00

**Quality Assurance**
1. Follow Section 01 33 23 Shop Drawings, Product Data, and Samples (01340 Shop Drawings, Product Data, and Samples) requirements.
2. Installation: Performed only by skilled workpeople with satisfactory record of performance on landscaping or paving projects of comparable size
3. and quality.

**Submittals**
1. Submit manufacturer's product data and installation instructions.
2. Submit a 10" x 10" section of material for review. Reviewed and accepted samples will be returned to the contractor.
3. Submit material certificates for base course and sand fill materials.

**Delivery, Storage, and Handling**
1. Protect units from damage during delivery and store under tarp to protect from sunlight, when time from delivery to installation exceeds one week.

**Project Conditions**
1. Review installation procedures and coordinate grass porous pavement with other work affected.
2. Cold weather:
   Do not use frozen materials or materials mixed or coated with ice or frost.
   Do not build on frozen work or wet, saturated or muddy subgrade
3. Protect partially completed paving against damage from other construction traffic when work is in progress, and until grass root system has matured (about 3 to 4 weeks). Any barricades constructed must still be accessible by emergency and fire equipment during and after installation.
4. Protect adjacent work from damage during Porous grass pavement installation.

**PART 2 - PRODUCTS**

5. Local Sales Representative: (Contact Manufacturer - Grassspave by Invisible Structures 1-800-233-1510)

Materials
1. Base Course: Sandy gravel material from local sources commonly used for road base construction, passing the following sieve analysis.

| Sieve | %Passing |
|---|---|
| 1" | 100 |
| 3/4" | 90-100 |
| 3/8" | 70-80 |
| #4 | 55-70 |
| #10 | 45-55 |
| #40 | 25-35 |
| #200 | 3-8 |

1. Sources of the material can include either "pit run" or "crusher run." Crusher run material will generally require sharp sand to be added to mixture (33% by volume) to ensure long-term porosity. Selected materials should be nearly neutral in pH (range from 6.5 to 7.2) to provide adequate root zone development for turf.

2 Grass Paving Units:
1.1. The plastic shall be 100% pre-consumer recycled HDPE plastic resin,
1.2. Loading capability is equal to 402 kg/cm2 (5721 psi, 823,824 psf, 7.4 million psy, 39,273 kPA, 3707 tons/sq.yd.) when filled with sand, over an appropriate depth of base.
1.3. Standard color is black.
1.4. Any products failing to meet these standards will be rejected.
2. Sand: To fill the 25 mm (one inch) high rings and spaces between the rings when seeding or using 13 mm (half inch) thick sod (soil thickness):
3. Coarse, well-draining sand (washed concrete sand- AASHTO M6 or ASTM C-33).
4. Seed: Use seed materials, of the preferred species for local environmental and projected traffic conditions, from certified sources. Seed shall be provided in containers clearly labeled to show seed name, lot number, net weight, % weed seed content, and guaranteed % of purity and germination. Pure Live Seed types and amount shall be as shown on plans.
5. Mulch: (Needed for seeding.) Shall be of wood or paper cellulose types of commercial mulch materials often used in conjunction with hydroseeding operations. Mulches of straw, pine needles, etc. will not be acceptable because of their low moisture holding capacity.
6. Fertilizer: A commercial "starter" fertilizer, with Guaranteed Analysis of 17-23-6, or as recommended by local grass supplier, for rapid germination and root development.
7. Sign: A sign to identify the presence of grass paving, stating that special maintenance is required, with the Manufacturer's phone number, and made of durable materials for outdoor exposure shall be provided and installed.
8. Fire lane Signage & Delineation: Fire lanes must be identified regarding their entrance and physical location with the placement of signs, gates, curbs, bollards, etc. Specific signage wording and other details must be coordinated with and approved by local fire authorities.

**PART 3 - EXECUTION**

Inspection
(It is recommended that Fire Department inspectors be scheduled to inspect installation of grass pave during preparation of the subbase, installation of the base course, and installation of units.

1. Examine subgrade and base course installed conditions. Do not start grass pave installation until unsatisfactory conditions are corrected. Check for improperly compacted trenches, debris, and improper gradients.
2. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Project Manager for resolution.

Preparation
(Ensure that subbase materials are structurally adequate to receive designed base course, wearing course, and designed loads. Fill soils and otherwise structurally weak soils may require modifications, such as geotextiles, geogrids, and/or compaction (not to exceed 90%). Ensure that grading and soil porosity of the subbase will provide adequate subsurface drainage.) Refer to Geotechnical Report.

1. Place base course material over prepared subbase to grades shown on plans, in lifts not to exceed 150 mm (6"), compacting each lift separately to 95% Modified Proctor. Leave minimum 25 mm (1") to 35 mm (1.5") for porous grass pave unit and sand/sod fill to Final Grade.
2. Spread all polymer mix provided (spreader rate = 4.53 kg per 100 m2 (10 lbs per 1076 ft2) evenly over the surface of the base course with a hand-held, or wheeled, rotary spreader. The mix should be placed immediately before installing the grass pave units to assure that the polymer does not become wet and expanded when installing the units.

Installation of grass porous pavement
1. Refer to manufactuters specification for installation of grass paver system

Installation of Grass
1. Hydroseeding/hydro-mulching - A combination of water, seed and fertilizer are homogeneously mixed in a purpose-built, truck-mounted tank. The seed mixture is sprayed onto the site at rates shown on plans and per hydroseeding manufacturer's recommendations. Coverage must be uniform and complete. Following germination of the seed, areas lacking germination larger than 20 cm x 20 cm (8" x 8") must be reseeded immediately. Seeded areas must be fertilized and kept moist during development of the turf plants.

Protection
1. Seeded areas must be protected from any traffic, other than emergency vehicles, for a period of 4 to 8 weeks, or until the grass is mature to handle traffic.

Cleaning
1. Perform cleaning during the installation of work and upon completion of the work. Remove all excess materials, debris, and equipment from site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

**SODDING**

**1.4 SUBMITTALS**

.1 Product Data: Submit manufacturer's printed product literature, specifications and datasheet and include:
.1 Product characteristics.
.2 Performance criteria.
.3 Limitations

.2 Quality assurance submittals:
.1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

**1.5 DELIVERY, STORAGE & HANDLING**

.1 Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

.2 The Contractor shall provide, upon request by the Departmental Representative, a label or statement certifying the quality grade, location of sod source and species of grass in the sod, and that the sod meets the specifications or requirements of this Standard for the stated grade.

**1.7 WARRANTY**

.1 Warranty all sod until completion of the first cut of the last roll of sod has been installed. First Cut shall occur when turf type grasses have achieved 100 - 125 mm in overall growth, with a cutting height of 75 - 87 mm.

.2 Repair any deterioration, bare spots, breaks or displacement of sod during warranty period. Be responsible for all maintenance of sodded areas during the warranty period, including watering and first mowing.

.4 At the conclusion of the warranty period, the sod should be predominantly green and succulent, showing evidence of rooting into the underlying soil. Sod shall not have greater than 3% scattered dead patches and these patches shall not exceed 0.15 m2 on an individual basis. Any sod which fails to meet these requirements must be corrected by the Contractor to bring the sod within these criteria, including the warranty period for new, replacement sod.

**1.8 MAINTENANCE**

.1 Water immediately upon installation. Water sodded areas in sufficient quantities and at required frequency to maintain topsoil immediately under sod continuously moist for depth of 75 to 100 mm.

.2 Water sufficiently thereafter to maintain optimum growing conditions during the warranty period. Ensure adequate moisture in root zone at freeze up.

.3 Provide all maintenance and protection of sodded areas until the Owner takes over responsibility for maintenance after the first cut of the last sod laid

**2.1 MATERIALS**

.1 Drainage Tile: Polyethylene pipe, perforated or non-perforated, no filter sock, 100 mm and 150 mm sizes, Big 'O' or approved equal as required.

.2 Topsoil shall be fertile, friable, topsoil, free of: fragments larger than 75 mm in size; stones over 30 mm in diameter; debris; plants or their roots; sticks; noxious weed plants/stolons/seeds; salts; soil sterilants; chemical contaminants; or other materials detrimental to plant growth.

.1 All Topsoil shall have the following characteristics: textural class of sandy loam, loam or silt loam; pH range of 6 - 7.8; 2 - 2.5% Organic Matter; less than 0.5 mmhos/cm (millisiemens/cm) Total Salts. Topsoil not meeting the minimum specification must be amended and retested. Fertilizer and mineral amendments must be made as per soil testing agency recommendations.

.2 All Topsoil for the Intensive-use lawn areas shall be sandy loam textural class only.

.3 Topsoil shall not be moved, delivered or worked on while in a frozen, wet or muddy state or condition.

.3 Final grading shall be free of any undulations or irregularities in the surface, resulting from fertilizing, liming, tiling, or other causes, shall be smoothed prior to turfgrass installation. Flooded, washed out areas, damaged or otherwise, shall be reconstructed and all grades re-established by the grading contactor in accordance with the drawings and/or other applicable specifications.

.1 Prior to installation of the turf, the surface shall be cleared, to a depth of 100 mm of all trash, debris, stones larger than 30 mm in diameter, and of all roots, brush, wire, grade stakes and other objects that would interfere with planting or maintenance operations.

.4 Sod: Sod shall be Rhizomatous Tall Fescue (RTF) as produced by certified RTFgrowers. Prior to installation, the contractor shall provide written submittal of the sod grower's certification.

In addition to the sod supplier's RTF grower certification, way bills must be provided from the certified RTF sod grower verifying the authenticity of the sod shall be provided with each delivery. Deliveries without the certificate will be rejected. **No substitutions of sod variety will be accepted.** Copies of the lading tickets and ***RTF SOD CERTIFICATE*** **for each delivery** are to be provided to the Department's Representative. The turf grass sod will not be accepted if this documentation is not provided.

.1 Cut thickness sod shall be machine cut at a uniform thickness of soil (excluding thatch and leaf growth) of 15 mm, plus or minus 6mm, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.

.5 Fertilizer: complete organic commercial fertilizer with 50% of the elements derived from organic sources.

.1 All Fertilizers shall be organic granular, pelletized or pill form, and shall be dry and free flowing, unless specified.

.6 **Biodegradable landscape stakes:** minimum 150 mm long, 100% biodegradable landscape stake specifically designed to anchor erosion blanket, mulch mat, turf sod, protective covers and netting with for sloped area with minimum 35mm hooked head and tapered, barbed end, and specifically designed to maintain holding power in the ground for 18 months after which it will completely disappear.

**3.2 PREPARATION**

Using approved topsoil, spread top soil over areas to be sodden to a minimum depth of 150 mm.

**3.4 INSTALLATION**

.1 Sodding shall not commence prior to completion of topsoil placement and installation of the external hose bibbs. Lay sod immediately upon delivery or as soon as possible thereafter, but no later than 36 hours after cutting. Water immediately to a minimum penetration depth of 75 mm.

.2 Lay individual sod pieces in a checkerboard fashion so that joints in adjacent rows are staggered a minimum of 25 cm, in smooth and even rows, closely knit, tight together in such a manner with no open joints visible and no pieces are stretched or overlapped.

.3 Sod shall be laid perpendicular to slopes or the flow of water. On slope areas, sodding shall be started at the bottom of the slope, with staggered joints and secured by pegging to resist washout during the establishment period. On slopes steeper than 2:1 every row shall be pegged with 100% biodegradable sod stakes at intervals of not more than 0.5 metres. Stakes shall be driven flush with sod.
.1 The installation contractor shall water the turf grass sod immediately after transplanting to prevent excessive drying during progress of the work. As sodding is completed in any one section, the entire area shall be lightly rolled. Tamp and roll the sodded area to a uniform surface. Blend all final sod grades smoothly to have a clean flush bond into adjacent surfaces. It shall then be thoroughly watered to a depth sufficient that the underside of the new sod pad and soil immediately below, are thoroughly wet. Do not use heavy power rollers. Maximum weight allowed: 450 kg. Hand roller shall have a minimum weight of 90 kg and a maximum weight of 135 kg.

**3.5 PROTECTION**

.1 Maintain and protect work until final acceptance. Newly sodded areas shall be protected from heavy foot traffic during laying. Planks shall be placed if necessary to prevent damage.

.2 Before pedestrian traffic is permitted on the turf, and after the turf is well rooted into the growing medium, all pegs or stakes shall be driven at least 50 mm below the surface.

.3 Departmental Representative will accept the Work only if areas are properly established, the turf is free of eroded, bare and dead spots and is 98 percent free of weeds. On completion and approval by the Owner and the Departmental Representative, give all necessary instructions for proper maintenance to ensure the continuing establishment of the stock in healthy condition.


**REBANKS Pepper Littlewood Architects Inc.**
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North:

Seal:

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS
JENNIFER HACKER
29 Sept 2014
MEMBER

| # | REVISION | DATE |
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| 4 | ISSUED FOR TENDER/SPA | SEPT 29/14 |
| 3 | ISSUED FOR CLIENT REVIEW | SEPT 15/14 |
| 2 | ISSUED FOR CLIENT REVIEW | JULY 30/14 |
| 1 | ISSUED FOR CLIENT REVIEW - RELOCATED TREES | JULY 16/14 |

Consultant:

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Client:

Government of Canada / Gouvernement du Canada

Project:

NIAGARA OFFICE ADMINISTRATION FACILITY HELIPORT

Location:

Niagara-on-the-Lake, Ontario

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| Project Manager: | ST |
| Project Number: | GSP #11129 |
| Tender: | |
| Date: | JULY 8, 2014 |
| Scale: | 1:250 |
| Drawn By: | CZ/ST |
| Checked By: | |

Drawing Title:

LANDSCAPE DETAILS AND NOTES

Drawing:

L-3