

GOVERNMENT OF NUNAVUT

IQALUIT AIRPORT - APPROACH LIGHTING REPLACEMENT

PROJECT PROPOSAL INFORMATION
REQUIREMENT

DECEMBER 2016

IQALUIT AIRPORT - APPROACH LIGHTING REPLACEMENT

PROJECT PROPOSAL INFORMATION REQUIREMENT

Government of Nunavut

Final Version

Project # 161-14039-00

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TABLE OF CONTENTS

1	PART 1 FORM.....	1-1
1.1	APPLICANT INFORMATION.....	1-1
1.2	AUTHORIZATION NEEDED	1-1
1.3	PROJECT PROPOSAL DESCRIPTION	1-2
1.4	NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION.....	1-4
1.5	MATERIAL USE	1-5
1.6	WASTE DISPOSAL AND TREATMENT METHODS	1-5
1.7	COMMUNITY INVOLVEMENT & REGIONAL BENEFITS	1-5
1.8	GENERAL QUESTIONS	1-5
1.9	APPLICANT SIGNATURE	1-5
2	PART 2 FORM.....	2-1
2.1	GENERAL PROJECT INFORMATION REQUIREMENTS	2-1
2.1.1	PROJECT COORDINATES AND MAPS.....	2-1
2.1.2	PROJECT GENERAL INFORMATION	2-1
2.1.3	DFO OPERATIONAL STATEMENT CONFORMITY	2-3
2.1.4	TRANSPORTATION.....	2-3
2.1.5	CAMP SITE.....	2-4
2.1.6	EQUIPMENT.....	2-4
2.1.7	WATER.....	2-4
2.1.8	WASTE WATER	2-4
2.1.9	FUEL	2-4
2.1.10	CHEMICALS AND HAZARDOUS MATERIALS*.....	2-5
2.1.11	WORKFORCE AND HUMAN RESOURCES/SOCIO-ECONOMIC IMPACTS	2-5
2.1.12	PUBLIC INVOLVEMENT/TRADITIONAL KNOWLEDGE	2-5
2.2	PROJECT SPECIFIC INFORMATION.....	2-5
2.2.1	SECTION A: ROADS / TRAILS.....	2-5
2.2.2	SECTION B: MINERAL EXPLORATION / ADVANCED EXPLORATION / DEVELOPMENT	2-6
2.2.3	SECTION C: PITS AND QUARRIES.....	2-6

2.2.4	SECTION D: OFFSHORE INFRASTRUCTURE	2-6
2.2.5	SECTION E: SEISMIC SURVEY	2-7
2.2.6	SECTION F: SITE CLEANUP / REMEDIATION	2-7
2.2.7	SECTION G: OIL AND NATURAL GAS EXPLORATION/ACTIVITIES.....	2-7
2.2.8	SECTION H: MARINE BASED ACTIVITIES	2-8
2.2.9	SECTION I: MUNICIPAL AND INDUSTRIAL DEVELOPMENT	2-8
2.3	DESCRIPTION OF THE EXISTING ENVIRONMENT	2-8
2.3.1	PHYSICAL ENVIRONMENT	2-8
2.3.2	BIOLOGICAL ENVIRONMENT	2-16
2.3.3	SOCIOECONOMIC ENVIRONMENT	2-19
2.4	IDENTIFICATION OF IMPACTS AND PROPOSED MITIGATION MEASURES.....	2-20
2.5	CUMULATIVE EFFECTS.....	2-22
2.6	SUPPORTING DOCUMENTS.....	2-22
3	REFERENCES.....	3-1

TABLES

TABLE 2-1:	TIDAL INFORMATION AT IQALUIT STATION #4140	2-11
TABLE 2-2:	RETURN PERIODS ON OFFSHORE WAVE HEIGHT BY DIRECTION	2-13
TABLE 2-3:	IDENTIFICATION OF ENVIRONMENTAL IMPACTS	2-23

FIGURES

FIGURE 2-1:	EXAMPLES OF EQUIPMENT	2-4
FIGURE 2-2:	WIND SPEED AND DIRECTION AT THE IQALUIT AIRPORT, 1953-2014	2-10
FIGURE 2-3:	WATER LEVEL (CD) FLUCTUATION FROM 1963-1977, IQALUIT STATION #4140.....	2-10
FIGURE 2-4:	ICE BLOCKS IN KOOJESSE INLET, JULY 2015	2-12
FIGURE 2-5:	ICE BLOCKS IN KOOJESSE INLET, JULY 2015	2-12
FIGURE 2-6:	OFFSHORE WAVE CLIMATE NEAR IQALUIT.....	2-13
FIGURE 2-7:	AIRPORT – CARNEY CREEK OUTFLOW LOCATION IN THE TIDAL FLATS.....	2-14
FIGURE 2-8:	AIRPORT CREEK FLOWING IN THE URBAN DEVELOPMENT OF IQALUIT.....	2-15

FIGURE 2-9:	LOCATION OF SOIL/SEDIMENT STATIONS.....	2-16
FIGURE 2-10:	TERRESTRIAL VEGETATION	2-17
FIGURE 2-11:	RAVEN ON A LIGHTING BAR, LOCAL STUDY AREA	2-18

MAPS

MAP 2-1:	LOCAL STUDY AREA AND PROJECT COMPONENTS.....	2-2
MAP 2-2:	REGIONAL STUDY AREA.....	2-9

APPENDICES

APPENDIX A	PART 1 FORM IN INUKTITUT
APPENDIX B	PRELIMINARY TECHNICAL DRAWINGS
APPENDIX C	SITE PHOTOGRAPHIES
APPENDIX D	MAPS AND FIGURES
APPENDIX E	PERTINENT SECTIONS OF AIRPORT EMERGENCY RESPONSE PLAN

1 PART 1 FORM

The Inuktitut form is available in Appendix A.

1.1 APPLICANT INFORMATION

1. Project Name: Iqaluit Airport – Approach Lighting Replacement

2. Applicant's full name and mailing address:

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Department of Economic Development and Transportation

Government of Nunavut

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1.2 AUTHORIZATION NEEDED

1. Indicate all authorizations associated with the project proposal:

Regional Inuit Association (RIA)	<input type="checkbox"/>	Canadian Launch Safety (CLS)	<input type="checkbox"/>
Nunavut Water Board (NWB)	<input type="checkbox"/>	Environment Canada (EC)	<input type="checkbox"/>
Nunavut Planning Commission (NPC)	<input type="checkbox"/>	Government of Nunavut (GN)	<input checked="" type="checkbox"/>
Indian and Northern Affairs Canada (INAC)	<input type="checkbox"/>	Department of National Defense (DND)	<input type="checkbox"/>
Department of Fisheries and Oceans (DFO)	<input checked="" type="checkbox"/>	Hamlet	<input type="checkbox"/>
Community Government & Services (CG&S)	<input checked="" type="checkbox"/>	Parks Canada (PC)	<input type="checkbox"/>
Nunavut Research Institute (NRI)	<input type="checkbox"/>	Canadian Wildlife Service (CWS)	<input type="checkbox"/>
Department of Culture, Language, Elders, and Youth (CLEY)	<input type="checkbox"/>	Other (please specify): Transport Canada	<input checked="" type="checkbox"/>

2. List the active permits, licenses, or other authorizations related to the project proposal, and their expiry date(s):

Not applicable

3. List the pending permits, licenses, or other authorizations related to the project proposal:

As the project is still in its design phase, permits have yet to be applied for. All required permits, licences or other authorizations will be obtained, as the project progresses.

4. Has this project or any components of this project been previously screened or reviewed by NIRB?

☐ Yes

☒ No

1.3 PROJECT PROPOSAL DESCRIPTION

1. Indicate the type of project proposal (check all that apply)

- | | | | |
|---|-------------------------------------|--|--------------------------|
| 1 All-Weather Road/Access Trail | <input checked="" type="checkbox"/> | 9 Site Cleanup/Remediation | <input type="checkbox"/> |
| 2 Winter Road/ Winter Trail | <input type="checkbox"/> | 10 Oil and Natural Gas Exploration/Activities | <input type="checkbox"/> |
| 3 Mineral Exploration | <input type="checkbox"/> | 11 Marine Based Activities | <input type="checkbox"/> |
| 4 Advanced Mineral Exploration | <input type="checkbox"/> | 12 Scientific/International Polar Year Research* | <input type="checkbox"/> |
| 5 Mine Development /Bulk Sampling | <input type="checkbox"/> | 13 Harvesting Activities* | <input type="checkbox"/> |
| 6 Pits and quarries | <input type="checkbox"/> | 14 Tourism Activities* | <input type="checkbox"/> |
| 7 Offshore Infrastructure (port, break water, dock) | <input checked="" type="checkbox"/> | 15 Other ⁽²⁾ : | <input type="checkbox"/> |
| 8 Seismic Survey | <input type="checkbox"/> | | |

Part 2 form is completed in the following chapter.

2. If Project Type 3, 4 or 5 was selected above, please indicate the mineral of interest that is being extracted. Include a brief description.

Not applicable

3. a. If Project Type 12, 13 or 14 was selected above, complete the table and questions below.

Not applicable

3. b. Describe any docks, piers, air strips or related structures that are to be used in conjunction with the proposed project activities.

Not applicable

3. c. If a temporary camp site is to be established, describe the proposed structures in detail and indicate the type and source of power for the camp site if applicable.

Not applicable

4. Personnel

Total No. of personnel on site = (A) 20

Total No. of days on-site = (B) 186

Total No. of Person days (A) × (B) = 3,720

5. Timing

Period of operation: from July 2017 to October 2018

Proposed term of authorization: from January 2017 to March 2017

6. a. Region (check all that apply):

- | | | |
|--|--|--|
| <input type="checkbox"/> North Baffin | <input type="checkbox"/> Kivalliq | <input type="checkbox"/> Kitikmeot |
| <input checked="" type="checkbox"/> South Baffin | <input type="checkbox"/> Transboundary | <input type="checkbox"/> National Park |

6. b. Describe the location of the proposed project activities in a regional context, noting the proximity to the nearest communities and any protected areas.

The project area is located in the city of Iqaluit. There are two parks located in the near vicinity of the city: Sylvia Grinnell Territorial Park and Qaummaarviit Territorial Park. The first is readily accessible, only a 30-minute walk from the city, while the latter is located 12 km away. As for other culturally significant sites, the community of Apex is known to be more traditional than the larger city. It is important to note that the "Road to Nowhere" is a popular spot among campers as it travels through the tundra and many lakes can be viewed from it. However, the project is not located in the near vicinity of these protected or culturally significant areas.

6. c. Discuss the history of the site if it has been used for any project activities in the past.

On land, the site currently houses the non-compliant airport lighting structure. As for the extension of the lighting structure that would be built onto a breakwater, it is currently in the inter-tidal zone. The Airport is presently owned and operated by the Government of Nunavut.

6. d. Indicate if there are any known archaeological/palaeontological historical sites in the area.

There are no known archaeological/paleontological or historical sites within the project area.

7. Land Status (check all that applies):

- ☒ Crown
 ☐ Commissioners'
 ☐ Municipal
☐ Inuit Owned Surface Lands
 ☐ Inuit Owned Sub-Surface Lands

8. a. Coordinates:

Min Lat (degree/minute)	63.7422	Min Long (degree/minute)	-68.5184
Max Lat (degree/minute)	63.7496	Max Long (degree/minute)	-68.5428
NTS Map Sheet No:	1:50,000 = 025N15, 025N16, 025N10, 025N09; 1:250,000 = 025		

8. b. If the project proposal includes a camp, please provide the coordinates of the camp location

Not applicable

1.4 NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Iqaluit is the business and government centre for the Baffin region and the capital of Nunavut. The Iqaluit International Airport serves as the only catchment for 11 Qikiqtaaluk region communities, and is the only conduit between these communities and the rest of Canada. The Iqaluit International Airport Improvement project is being undertaken as a P3 project and includes: a new airport building, expanded aprons for aircraft to park, new lighting systems, an upgraded runway, and a new combined services building that will house the fire-fighting vehicles, support equipment and heavy equipment.

The current non-standard runway approach lighting system is nearly 30 years old and has reached the end of its expected lifespan. The existing approach lighting system is difficult to maintain for much of the year due to access restrictions and does not comply with the existing standards for approach lighting systems. Its length was shortened due to its proximity to Koojesse Inlet and extends only 273.5 m instead of the prescribed 720 m. Therefore, to comply with the current standards, the approach lighting system must be extended by 450 m to the south-east into Koojesse Inlet. This extension incorporates the same number of steady burning lights as the system it is replacing. The vertical alignment, intensity and beam focus of the new steady burning lights are unchanged from the existing system although the system is elongated by 450 m. The only other change from the existing system is that the two (2) simultaneously flashing strobes at the threshold end are replaced with five (5) sequenced strobes at the outer end.

Since approximately 80% of aircraft movements at the Iqaluit International Airport rely on instrument approaches, simply removing the existing approach lighting system would have a negative impact on aviation safety. Additionally, there are limited alternate airports to which to divert due to weather. Four (4) approach lighting configuration options were considered and presented to Transport Canada in 2012:

- Option 1 – Compliant approach lighting configuration (extending into Frobisher Bay) with no changes to runway;
- Option 2 – Compliant approach lighting configuration and displacement of the runway (by 447.3 m);
- Option 3 – Non-compliant lighting configuration and modification of airport usability (420 m in length);
- Option 4 – Non-compliant lighting configuration and modification of airport usability (540 m in length).

Option 2 was rejected since it would have significant operational impacts. While options 3 and 4 were not dismissed by Transport Canada, changes would need to be made to the level of service. This would likely be unacceptable to stakeholders and would reduce airport usability. Therefore, option 1 was found to be the preferred alternative as it meets the regulatory requirements and does not impact the current airport operations.

To extend the lighting structure into Koojesse Inlet, a breakwater (consisting of rubble) must be built. The rubble will be provided by the local quarry and trucks will haul the material to the site. In total, 12 lighting bars are needed to comply with standards (3 on-land and 9 on the new breakwater). The existing lighting bars will be replaced by new ones. To access the construction site, the existing sewage lagoon road will be extended.

The project will be realized over a two (2) year period with effective work being conducted from July to November. The construction activities will employ about 20 individuals for its duration.

IMPORTANT: If the proposed activities require submission of a NIRB Part 2 PSIR Form, please complete Section 8 only, otherwise continue on with Section 5.

1.5 MATERIAL USE

Refer to Part 2 form.

1.6 WASTE DISPOSAL AND TREATMENT METHODS

Refer to Part 2 form.

1.7 COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

Refer to Part 2 form.

1.8 GENERAL QUESTIONS

1. Will you be disturbing any known archaeological sites?

☐ Yes

☒ No

1.9 APPLICANT SIGNATURE

Please sign and date your application:

_____	Director of Iqaluit Airport	_____
Signature	Title	2016-12-15
		Date

2 PART 2 FORM

2.1 GENERAL PROJECT INFORMATION REQUIREMENTS

2.1.1 PROJECT COORDINATES AND MAPS

Map 2-1 illustrates the project components and all map files are available on a CD attached to this document.

2.1.2 PROJECT GENERAL INFORMATION

Iqaluit is the business and government centre for the Baffin region and the capital of Nunavut. Located on the southern portion of Baffin Island on Koojesse Inlet, Iqaluit is the largest community in Nunavut and the gateway to the Arctic from Eastern Canada. The Iqaluit International Airport serves as the only catchment for 11 Qikiqtaaluk region communities (over 120,000 passengers annually), and is the only conduit between these communities and the rest of Canada. The population of these communities totals approximately 18,000.

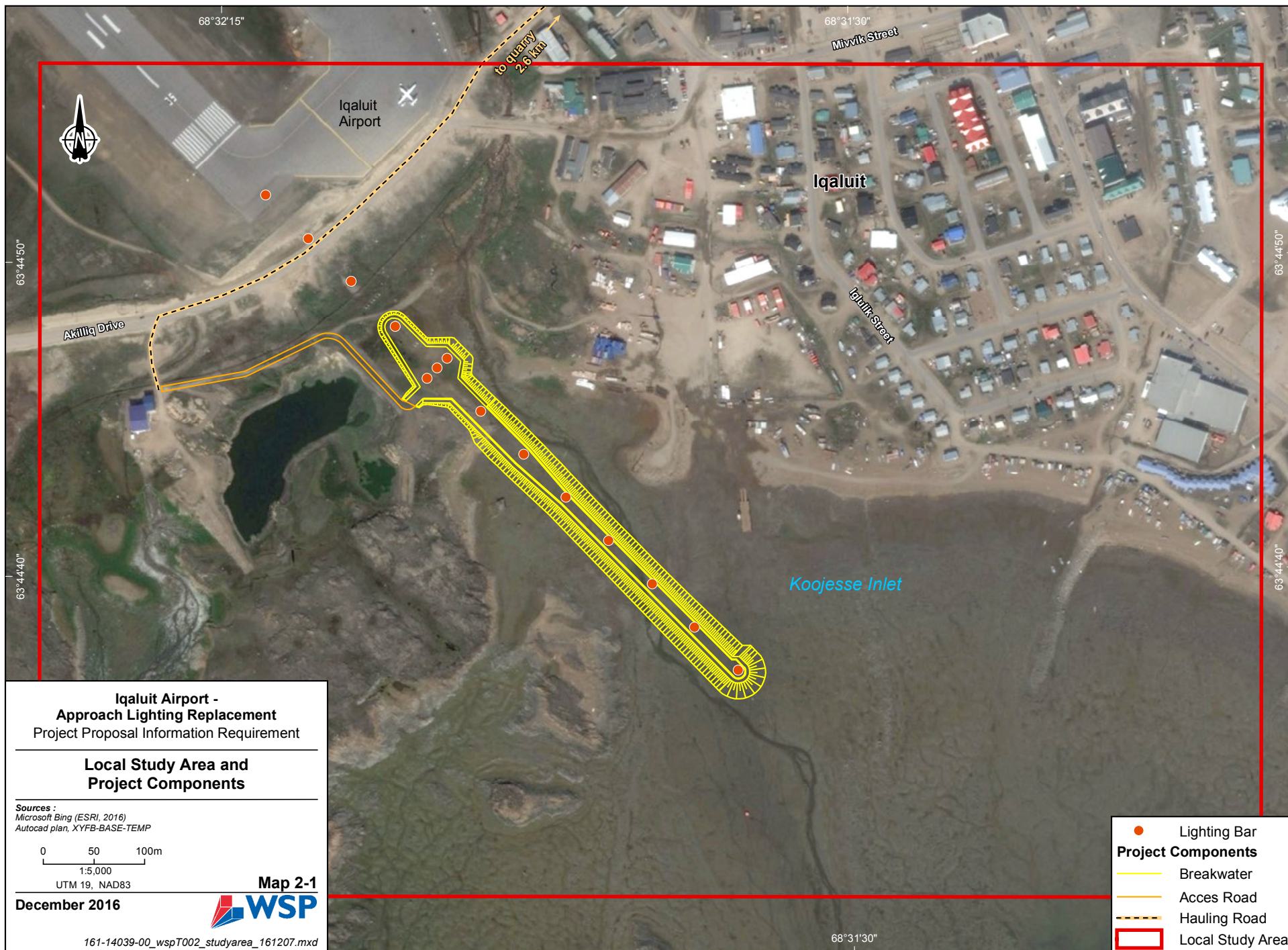
The Iqaluit International Airport Improvement project is being undertaken as a P3 project and includes: a new airport building, expanded aprons for aircraft to park, new lighting systems, an upgraded runway, and a new combined services building that will house the fire-fighting vehicles, support equipment and heavy equipment.

The current non-standard runway approach lighting system is nearly 30 years old and has reached the end of its expected lifespan. The existing approach lighting system is difficult to maintain for much of the year due to access restrictions and does not comply with the existing standards for approach lighting systems (TP312E 4th Edition). Its length was shortened due to its proximity to Koojesse Inlet and extends only 273.5 m instead of the prescribed 720 m. Therefore, to comply with the current standards, the approach lighting system must be extended by 450 m to the south-east into Koojesse Inlet (located in Frobisher Bay). This extension incorporates the same number of steady burning lights as the system it is replacing. The vertical alignment, intensity and beam focus of the new steady burning lights are unchanged from the existing system although the system is elongated by 450 m. The only other change from the existing system is that the two (2) simultaneously flashing strobes at the threshold end are replaced with five (5) sequenced strobes at the outer end.

As approximately 80% of aircraft movements at the Iqaluit International Airport rely on instrument approaches, simply removing the existing approach lighting system would have a negative impact on aviation safety. Additionally, there are limited alternate airports to which to divert due to weather.

Four (4) approach lighting configuration options were considered and presented to Transport Canada in 2012:

- ➔ Option 1 – Compliant approach lighting configuration (extending into Frobisher Bay) with no changes to runway;
- ➔ Option 2 – Compliant approach lighting configuration and displacement of the runway (by 447.3 m);
- ➔ Option 3 – Non-compliant lighting configuration and modification of airport usability (420 m in length);
- ➔ Option 4 – Non-compliant lighting configuration and modification of airport usability (540 m in length).



Option 2 was rejected since it would have significant operational impacts. While options 3 and 4 were not dismissed by Transport Canada, changes would need to be made to the level of service. This would likely be unacceptable to stakeholders and would reduce airport usability in poor weather conditions (low visibility, low ceiling height or in cross wind conditions).

Option 1 was found to be the preferred alternative as it meets the regulatory requirements and does not impact with the current airport operations.

Once it was decided that the approach lighting structure would extend into Koojesse Inlet, engineering studies were completed to choose the best support structure. Two (2) functional requirements were identified: a year-round access for a boom-lift to perform maintenance operations at the lighting equipment and a structure that would be very stable as the lighting systems have a very low tolerance to movement. The rubble mound breakwater, which consists of constructing a pier with granular material, was deemed the best option as it offers the required stability. Lighting support structures and an access road for maintenance will be located on top of the breakwater, while electrical conduits will be installed below its surface. This breakwater will facilitate approach light tower installation and maintenance operations. The crest surface of the breakwater will provide an access route for maintenance vehicles and will be accessible by the existing road located to the east of the sewage lagoon.

The preliminary design of the breakwater was based on environmental data provided in recent studies of water level, wave and ice conditions. Preliminary technical drawings are provided in Appendix B, including a plan, profile and typical cross-sections of the rubble mound. The drawings are based on detailed topographic and hydrographic surveys that were conducted in July 2015. Twelve (12) light fixtures are projected. Bars 34-1 through 34-3 (refer to Appendix B) are located above extreme high-tide level. These bars will be installed on insulated infrastructure and will be accessible by land, on either side of Akiliq Drive, at all times. Bars 34-4 through 34-12 will be installed, within the intertidal zone, on the breakwater, also above the extreme high-tide level.

The lights are aimed towards the sky and partly shielded, when one is off 45 degrees from their center, they are barely visible. Depending on their positions the lights are either stroboscopic (Bars 34-7 to 34-12) with a very distinct flashing sequence or steady burning (Bars 34-1 to 34-6). The lights are turned on when a plane commences final approach for the runway and are left on for about 20 minutes.

Site photos, illustrating the current non-standard lighting system and general project area, can be found in Appendix C. The project will be realized over a two (2) year period with effective work being conducted from July to November. The construction activities will employ about 20 individuals for its duration.

2.1.3 DFO OPERATIONAL STATEMENT CONFORMITY

Not applicable

2.1.4 TRANSPORTATION

As indicated previously, Map 2-1 locates the project and its components. The access road that will lead to the construction area is positioned. Additionally, the quarry from which the rubble will be supplied can also be found on Map 2-2.

At this point in time, it is anticipated that more than 200,000 t of material will need to be brought to the construction site. Depending on the rock truck's capacity and the project as currently scheduled, this could represent about 90 trips per workday between the months of July and November, in the first year, and 90 trips per day in July and August of the second year. This includes the fill material that would be needed to build the access road.

2.1.5 CAMP SITE

Not applicable

2.1.6 EQUIPMENT

Rock trucks of about 20 t capacity and large track excavators will be used. The rock trucks will haul the material between the quarry and the construction site while the excavators will position it along the access road and breakwater. Figure 2-1 shows photos of the type of equipment that could be used during construction.



Figure 2-1: Examples of Equipment¹

2.1.7 WATER

The access road leading to the work areas will be watered down in dry periods to minimize dust emissions. Methods of the City of Iqaluit for water retrieval will be complied with (supply and location).

2.1.8 WASTE WATER

Apart from sewage waste associated with the presence of portable toilets on-site for the workers (most likely 2), there will be no generation of wastewater.

2.1.9 FUEL

Fuelling operations will be restricted to a designated area. The designated area will be at a minimum of 30 m from any waterbody. Fuelling operations will be monitored and carried out in compliance with the appropriate environmental standards. Also, construction equipment will be maintained in compliance with the manufacturer's recommendations. All spills will be reported to the appropriate environmental authorities

¹ <http://www.europe-construction-equipment.com/caterpillar-track-excavator/london-city-of/ts-vi227853/used.html>
http://www.beiben-trucks.com/China-North-Benz-truck-20ton-dump-truck-10-wheels-Beiben-tipper-truck-low-price_p421.html

and actions will be taken immediately to remediate the spill. At this stage of the project, it is unknown where the fuelling will take place.

2.1.10 CHEMICALS AND HAZARDOUS MATERIALS*

No chemicals or hazardous materials shall be located on site. All oil changes for the machinery shall be done outside of the work areas.

2.1.11 WORKFORCE AND HUMAN RESOURCES/SOCIO-ECONOMIC IMPACTS

The value of the contract is about \$14M. It would employ about 20 individuals on average, for 2 years between the months of July and November. The Government of Nunavut's issue and standard contract policy favours the local workforce in the awarding process. It is very likely the workers will be from Iqaluit and travel to the construction site by their own means.

2.1.12 PUBLIC INVOLVEMENT/TRADITIONAL KNOWLEDGE

Given that the project area is located within the limits of the City of Iqaluit, the local population is the most likely to be affected. Marine users could be impacted by the presence of the breakwater. Local businesses will benefit due to the construction contract, while the local workforce will be employed and profit from it.

As of now, three (3) federal agencies have been consulted with regards to the project. In 2012, the assessment of alternatives was submitted to Transport Canada (TC) for consideration. Following this review, the current project, as proposed, was developed. TC has indicated that further evaluation is needed, including consultations with stakeholders such as marine users.

Consultations with Fisheries and Oceans Canada (DFO) were undertaken and will be pursued; however DFO's initial comments do not suggest that the project would result in adverse environmental effects. The Canadian Coast Guard (CCG) has issued some concerns with regards to the lighting sequence and its possible conflict with the existing beacons that guide the ships towards the channel. Discussions are ongoing with engineers and the CCG to address this concern.

To continue with the consultation process, various sessions will be organized as part of the public involvement plan if an environmental impact statement is required. These sessions will confirm that the project does not impact traditional activities and integrates the local concerns, if any, into the design, the development of mitigation measures and/or monitoring. Key stakeholders, including the Amarok Hunters and Trappers Association, and community members will be met with.

2.2 PROJECT SPECIFIC INFORMATION

The following sections identify the information requirements based on the project types identified in Section 3 of the NIRB, Part 1 Form.

2.2.1 SECTION A: ROADS / TRAILS

2.2.1.1 A-1.PROJECT INFORMATION

In order to reach the future breakwater site, the existing sewage lagoon road will be extended to the inter-tidal zone. This new road will be gated and not become public. Location of the access road can be found in Maps 2-1 and 2-2. It will be cleared of snow during the winter season and be under the responsibility of the Iqaluit airport. There are no water crossings; rock fill will be used to build this road.

It is estimated that the access road and breakwater will be accessed once a month in order to perform Transport Canada's required maintenance and safety inspections of the approach lighting structure, and if need be, replace any dysfunctional equipment (e.g. change bulbs).

2.2.1.2 A-2. ALL-WEATHER ROAD / ACCESS TRAIL

Refer to sections 2.1.9, 2.2.1.1 and 2.2.4.2.

2.2.1.3 A-3. WINTER ROAD / TRAIL

Not applicable

2.2.2 SECTION B: MINERAL EXPLORATION / ADVANCED EXPLORATION / DEVELOPMENT

Not applicable

2.2.3 SECTION C: PITS AND QUARRIES

The material used for the construction of the access road and breakwater will be provided by the Iqaluit airport quarry, which is already in operation (refer to section 2.2.4.2).

2.2.4 SECTION D: OFFSHORE INFRASTRUCTURE

2.2.4.1 D-1. FACILITY

The topographic and bathymetric data collected during field investigations are presented in section 0. A description of the water levels to be expected in Koojesse Inlet as well as its tidal processes is also provided. Furthermore, preliminary technical drawings are provided in Appendix B, including a plan, profile and typical cross-sections of the breakwater.

To determine the stone sizes that would need to be used for constructing the proposed breakwater, the existing breakwater located in the eastern part of Koojesse Inlet was inspected by WSP in July 2015 (approximately 1 km away from the proposed study site). Following the field investigations and the wave hindcast study it was determined that 2 t armour stone would be needed to protect the structure from the elements. A geotechnical study is needed to assess if the lighting bars will need to be anchored separately from the breakwater to ensure their stability.

All work areas are located within the Nunavut Settlement Area (area A). Additionally, the design follows Transport Canada's guidelines that identify a 100-yr useful residual life.

2.2.4.2 D-2. FACILITY CONSTRUCTION

IQALUIT AIRPORT QUARRY

The Iqaluit Airport quarry is currently extracting rock and granular material for the purposes of constructing the Iqaluit International Airport Improvement Project. The quarry is relatively close to the site (3 km), and is located east of the runway and north of the taxiway complex on Iqaluit International Airport land. The *Nunavut Commissioner's Land Regulations* do not apply to the *Commissioner's Airport Lands Regulations* and accordingly, airports do not require any permits for quarrying on their land provided that the aggregate material is to be used for airport use and purposes.

The quarry activities and operations are currently run by Kudlik Construction Ltd. (Kudlik). A representative of the company was met in July 2015, and WSP viewed the quarry site, its operations, the type of aggregates produced and the testing that was done on the aggregates.

During the quarry visit, two main rock formations were observed. The first rock formation is light grey pinkish granitoid. Very little fracture sets were observed. Most of the fractures were random and the rock quality is considered to be very good to excellent. The second rock formation is a dark grey granodiorite rock. Occasional veins of granitoid can be found within this formation. The contact planes between the veins and the main formation are generally disintegrating and are very weak. Aside from the veins, the formation is also of relatively good quality with little fracturing and no noticeable chemical alterations.

Overall, with the exception of the vein areas, both rock formations could be potentially used in the construction of the rubble mound, since they show no signs of degradation or disintegration, and are structurally sound. According to the quarry representative, production of large boulder sizes can be readily accommodated. Although the rocks that will be used for the breakwater will come from the quarry, the operations linked to its site are not included in the project's scope.

CONSTRUCTION

As currently estimated, 209,300 t of stone will be needed to build the breakwater. Most of the material required will be for the breakwater's core (153,500 t). Filter stone will be added around the core (19,000 t) and finally armour stone will protect the breakwater from the elements (36,800 t). The weight of the various materials is as follows: blasted rock (from a few kilograms to 100 kg) (core), 200 kg (filter) and 2 t (armour).

To build the breakwater, the finer material that is needed for the core will be extended into the bay. The surrounding filter and armour stones will be laid down as the workers advance. The breakwater could be built right away at the required elevation or could be laid down gradually by working above the tide levels. The construction methods will be developed in the detail design as well as methods for mitigating the release of suspended solids. Once the breakwater is completed, the lighting bars will be assembled along it. During construction, an engineer will be present on-site to ensure that all construction work is accomplished in compliance with best practices.

2.2.4.3 D-3. FACILITY OPERATION

Refer to section 2.2.4.1 above.

2.2.4.4 D-4. VESSEL USE IN OFFSHORE INFRASTRUCTURE

Not applicable

2.2.5 SECTION E: SEISMIC SURVEY

Not applicable

2.2.6 SECTION F: SITE CLEANUP / REMEDIATION

Not applicable

2.2.7 SECTION G: OIL AND NATURAL GAS EXPLORATION/ACTIVITIES

Not applicable

2.2.8 SECTION H: MARINE BASED ACTIVITIES

No vessels will be used in the construction or operational phases.

2.2.9 SECTION I: MUNICIPAL AND INDUSTRIAL DEVELOPMENT

Not applicable

2.3 DESCRIPTION OF THE EXISTING ENVIRONMENT

Map 2-1 positions the local study area, while the regional study area for this project is illustrated on Map 2-2. The following description of the relevant environmental components is based on the regional study area. All additional figures referenced in this section are provided in Appendix D.

2.3.1 PHYSICAL ENVIRONMENT

2.3.1.1 WIND DATA

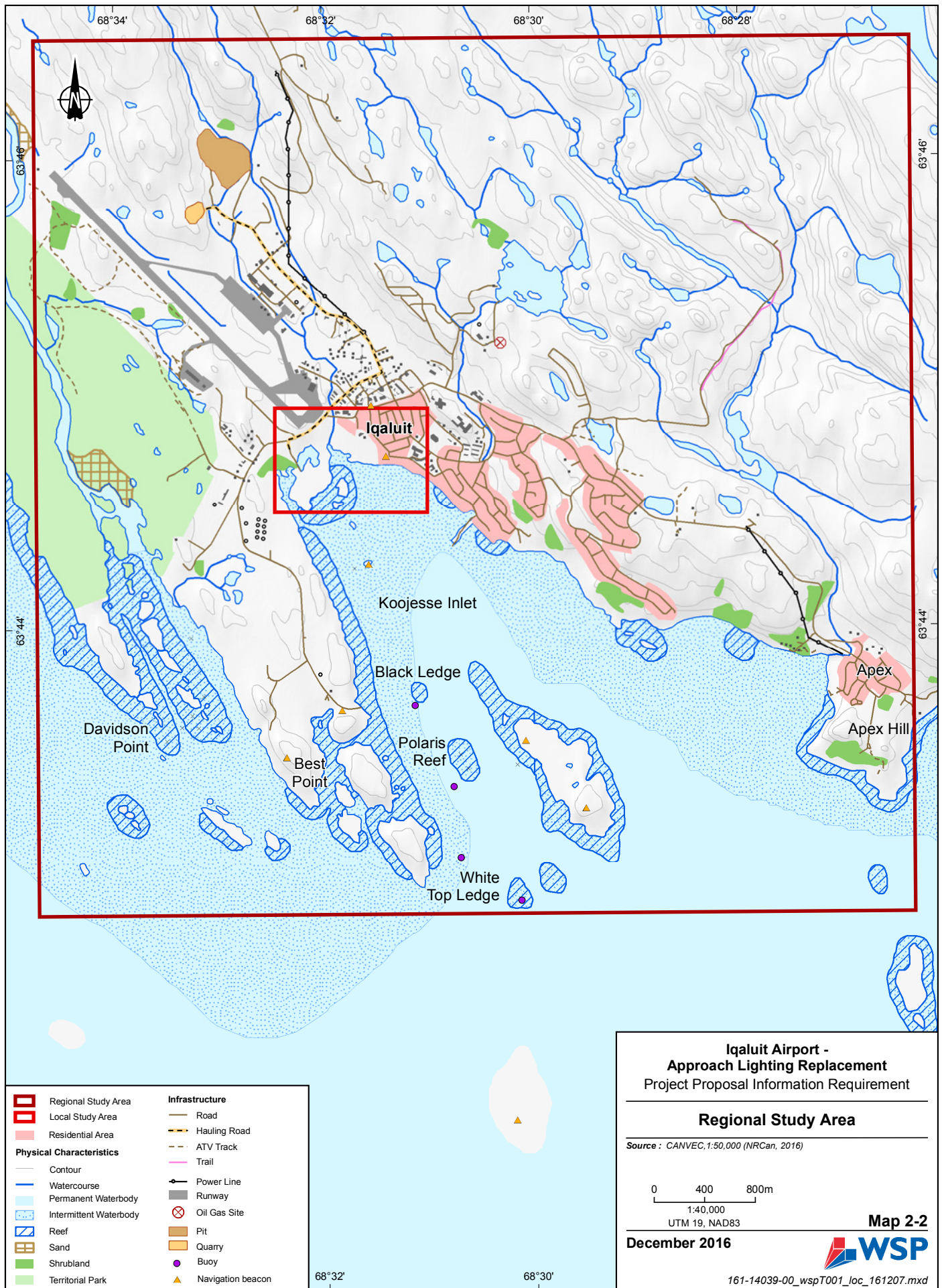
The recorded wind speed and directions from 1953 to 2014 at Iqaluit Airport are shown in Figure 2-2. Results show that prevailing winds are from the southeast (SE) and northwest (NW) directions with maximum speeds in the order of 100 to 110 km/h (Environment Canada, 2016).

2.3.1.2 TOPOGRAPHIC AND BATHYMETRIC SURVEYS

Topographic and bathymetric data were collected by WSP in July 2015, on-land in the vicinity of the proposed approach lighting structure and off-shore in Koojesse Inlet. Combining both field surveys, the Coastal Environment Study map in Appendix D shows the bathymetric contours in the vicinity of the project site. The water depth refers to the HHWMT (Higher High Water Mean Tide) which corresponds to an elevation of 9.73 m Chart Datum and an elevation of 3.75 m relative to the Canadian Geodetic Vertical Datum (CGVD).

2.3.1.3 WATER LEVELS

The mean daily water level time series (Figure 2-3) was extracted at Iqaluit station (#4140) from the Canadian Hydrographic Survey (CHS) for the period of 1963 to 1977. During this period, the station ran intermittently. Water level fluctuations are confined within a range of 12 m (macro tidal conditions) and indicate that the mean water level is around 6.0 m above chart datum (CD). The maximum water level was recorded on November 21, 1964, with a value of 12.09 m (CD).



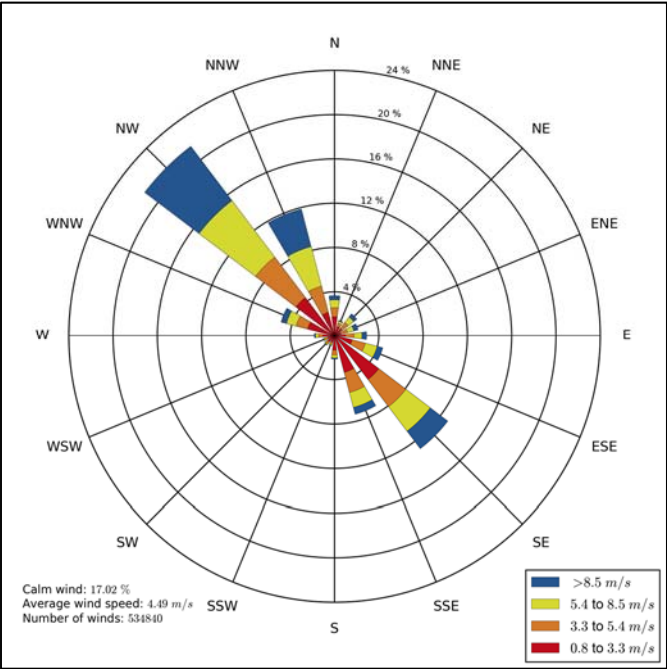


Figure 2-2: Wind Speed and Direction at the Iqaluit Airport, 1953-2014

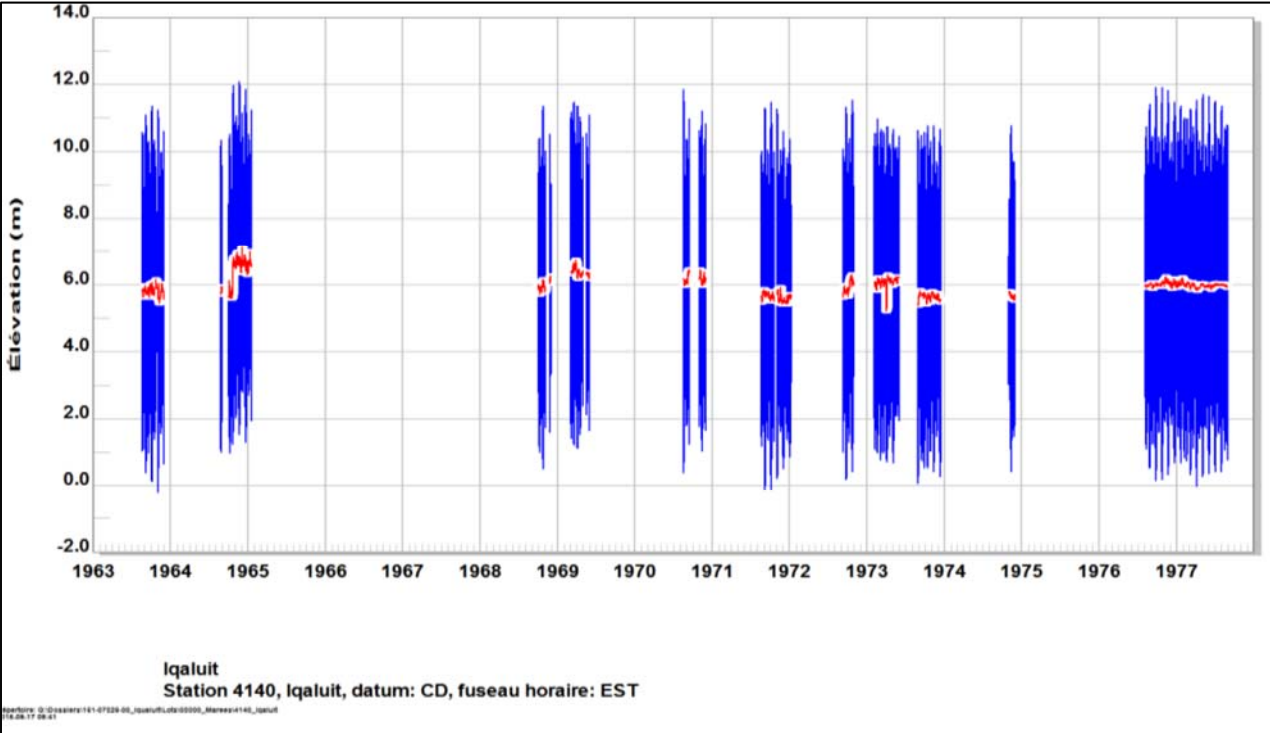


Figure 2-3: Water Level (CD) Fluctuation from 1963-1977, Iqaluit Station #4140

Tidal information published by the CHS (2014) at Iqaluit station #4140 is provided in Table 2-1. The height reference system to the mean sea level (MSL) refers to the CGVD.

A tidal harmonic analysis was undertaken based on the 1964, 1976, and 1977 tidal observations to reconstruct the hourly tidal predictions and provide estimation of storm surges at high water level in Iqaluit. This analysis confirmed that maximum water levels in Iqaluit are dominated by extreme high tides with a slight influence induced by storm surges under low barometric systems. Hatcher (2014) reached a similar conclusion that there are no significant storm surges in the Iqaluit area.

Table 2-1: Tidal Information at Iqaluit Station #4140

Characteristics	Elevation CD (m)	Elevation MSL (m)
Higher High Water Large Tide (HHWLT)	11.68	5.67
Mean Sea Level (MSL)	6.01	0
Lower Low Water Large Tide (LLWLT)	0.09	-5.92

2.3.1.4 ICE COVER

The ice regime near the future breakwater in Koojesse Inlet can be generally divided into three periods: freeze-up; mid-winter; and break-up. Freeze-up extends until about the end of December. The ice is thin and mobile during freeze-up. Horizontal ice movements occur due to winds and tidal flows. As well, vertical ice motions occur regularly in response to tides. The ice thickness generally does not exceed about 0.5 m during the freeze-up period.

Mid-winter is considered to extend from about early-January to mid-to-late June. A stable ice sheet forms and the ice thickens due to thermal growth. The maximum annual ice thicknesses in the area were found to be 1.99, 2.03, and 2.05 m for 25-year, 50-year, and 100-year return periods respectively. Horizontal ice movements are not expected to occur. Vertical movements occur steadily in response to tides although the breakwater will be shielded from them due to the fact that it is in the intertidal zone. Thus, the mid-winter period is not considered to be hazardous to the causeway for ice encroachment or for the stability of the armour stones.

Break-up generally occurs in July, although the break-up period is preceded by ice decay in May and June when the snow cover is removed, causing melting to occur. Ice decay typically starts at the shoreline as this area is the first to warm up, in response to solar radiation. As break-up progresses, the nearshore area becomes ice-free while sheet ice is still present offshore. Ice floes may drift into the intertidal area where the breakwater will be located. Later on, the ice in the intertidal zone, in the vicinity of the planned breakwater, is broken up, and consists of thick, but small, ice pieces. These ice pieces may be alternately floated and grounded as the tide comes in and goes out respectively. During the break-up period, the breakwater may be subjected to ice movements, in either the horizontal or vertical directions; however the armour stone will protect its integrity (G. Comfort Ice Engineering Ltd, 2015). Figure 2-4 and Figure 2-5 show ice blocks in the intertidal zone.

2.3.1.5 WAVE CLIMATE

OFFSHORE WAVE CLIMATE

A wave hindcast model was used to generate an offshore wave climate, since no wave measurement data was available over a long period of time near the project's location. The wave climate data was derived

from the wind measurements at the Iqaluit airport meteorological station and computed at a point representative of offshore wave exposure with maximal fetches in all directions.

Offshore wave hindcast data at Iqaluit estimated a maximum significant wave height in the order of 4 m, with an extreme value of 4.2 m as observed in the early 60's. The wave height frequency distribution is summarized in Figure 2-6 (WSP, 2015).



Figure 2-4: Ice Blocks in Koojesse Inlet, July 2015



Figure 2-5: Ice Blocks in Koojesse Inlet, July 2015

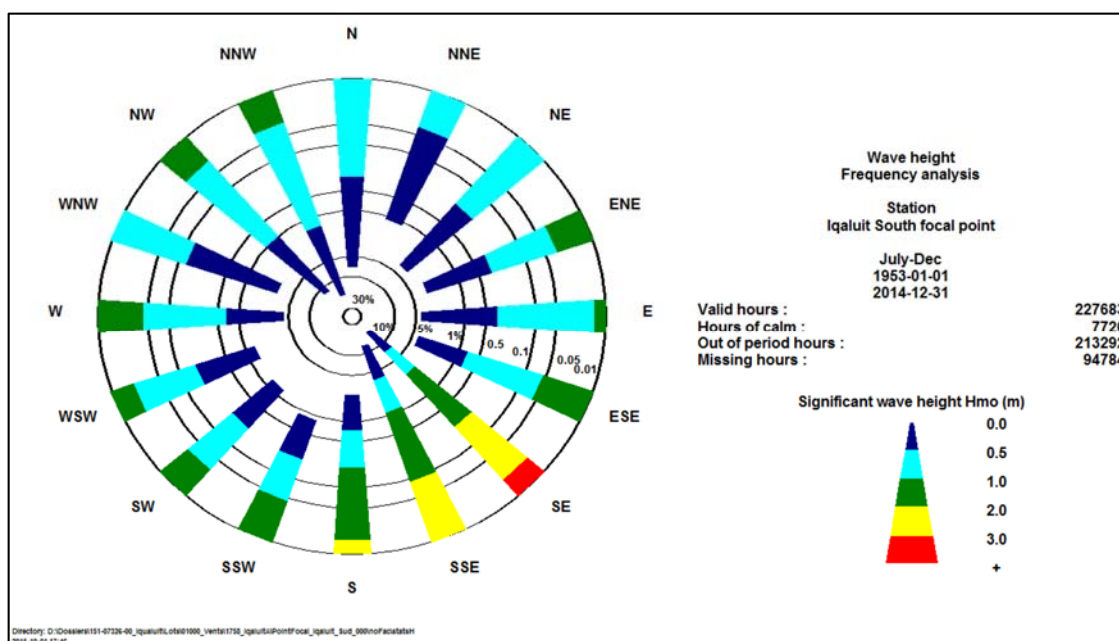


Figure 2-6: Offshore Wave Climate near Iqaluit

The extreme wave height was calculated based on a standard Extreme Value Analysis (EVA). The results are provided only for the incoming wave directions from ESE to SW, which correspond to the angles where maximal wave height would be expected (Table 2-2).

Table 2-2: Return Periods on Offshore Wave Height by Direction

Return Periods (yrs)	ESE	SE	SSE	S	SSW	SW
2	0.95	2.19	1.77	1.24	0.72	0.70
10	1.31	3.13	2.71	2.06	1.54	1.33
25	1.43	3.53	3.12	2.37	1.93	1.60
50	1.50	3.80	3.39	2.57	2.19	1.78
100	1.57	4.06	3.65	2.75	2.45	1.95

NEARSHORE WAVE CLIMATE

As the deep water waves propagate to the shore, various physical phenomena transform the waves as they interact with the seabed. To transform the offshore conditions near the proposed breakwater, a numerical model was used to obtain the conditions at its tip. The following physical processes are verified:

- Refraction and shoaling due to depth variations;
- Dissipation due to wave breaking;
- Dissipation due to bottom friction;
- Dissipation due to white-capping;
- Wave reflection on coastal structures.

Input conditions to the model consisted of specific combinations of wave height, wave period and water level that represent design and overload storm scenarios that support the design of the proposed structure. To simulate worst-case situations, all wind directions were inputted to be from the SE. The modelling results confirm that a maximum wave height of 1.2 m is found at the tip of the proposed breakwater which is sufficient to ensure that the lighting structure will be above the water level intrusion (see Appendix D) (WSP, 2015).

2.3.1.6 HYDROLOGY

AIRPORT – CARNEY CREEK

Airport – Carney Creek outflows through the urban waterfront of Iqaluit and meets the tidal flats in the same vicinity as the proposed new approach lighting structure (Figures 2-7 and 2-9). During the July 2015 site visit, a brief investigation of the river hydrology and hydraulics indicated that the waterway passes through the urban development of Iqaluit and is heavily altered and disturbed by human activities (Figure 2-8) (WSP, 2015).



Figure 2-7: Airport – Carney Creek Outflow Location in the Tidal Flats

2.3.1.7 SOIL AND SEDIMENT CONDITIONS

The proposed land-based lighting structure and its breakwater's footprints were examined during low tide periods by WSP (2015). The visit took place in July 2015. The description corresponds to the locations identified in Figure 2-9.

TERRESTRIAL ZONE

This zone is located between points 1 to 2. Point 1 is at the eastern extent of the current runway, and point 2 is at the approximate limit of the high-water level. The current lighting system is in this zone, which is about 230 m in length. The topography gradually slopes from points 1 to 2, with occasional steeper sections. Akilliq Drive crosses this section close to point 1, while a petroleum pipeline crosses the section parallel to the road, approximately in the middle between points 1 and 2.



Figure 2-8: Airport Creek Flowing in the Urban Development of Iqaluit

The surficial soil in this section mostly consists of loose gravelly sand, with a thin vegetation cover. Some erosion is evident in the steeper sections of the slope, while there is more dense vegetation in the less sloped areas. To the east side of this zone, soils become silty and gravelly sands, generally loose. The last 30 m of the zone to the east is more gravelly and blocky and more compact. At point 2, a rock outcrop is present.

ROCK OUTCROP

For a section of about 50 m from point 2 to point 3, a rock outcrop is present on the south side. The outcrop is elevated towards the south and dips below the surficial soils to the north towards the river. Some large detached boulders are also present in this section resting on the sandy surficial soils. Bedrock is slightly altered on the surface but some breaks show the rock is of granitic origins and is not altered below the surface.

TIDAL ZONE WEST OF AIRPORT CREEK

For a distance of about 150 m between points 3 and 5, the surficial soil mostly consists of silty and sandy sediments, along with large boulders that are erratically deposited on the surface. In addition to the ice blocks that were present on the surface during the investigation, occasional ice lens were present on the surface and lightly covered by the silty and sandy material. The soils are occasionally very loose, but overall seemed to be compact.

CREEK CROSSING ZONE

The proposed breakwater crosses the airport creek diagonally between points 5 and 6 for a distance of about 50 m. In that section, the stream is relatively shallow, the deepest point being about 0.3 m. The deposits in this area are mainly sand and gravel with some boulders. Immediately to the east of the stream between points 6 and 7 for about 30 m, the surface deposits consist mostly of very loose gravel and pebbles.



Figure 2-9: Location of Soil/Sediment Stations

TIDAL ZONE EAST OF AIRPORT CREEK

To the east of point 7, towards point 8 for a distance of about 150 m, the surface can be described as silty with some sand, pebbles and occasional boulders. The soil is relatively compact. For about 80 m between points 8 and 9, a slightly higher surface elevation is observed that consists of a sandier soil along with a higher percentage of pebbles and boulders. At point 10, 60 m further to the east, a number of boulders are sitting on the surface, which could be a remnant of an ancient breakwater. These boulders can potentially be an obstacle to navigation when the tides are receding. The underlying surficial materials appear to be similar as described above.

2.3.1.8 NIGHT LIGHT

The day-night cycle varies throughout the year based on the season. In the summer, there is nearly 24h of daylight, while winter brings only 4h of sunlight per day.

2.3.2 BIOLOGICAL ENVIRONMENT

2.3.2.1 TERRESTRIAL VEGETATION

According to the Circumpolar Arctic Vegetation Map (CAVM, 2003), the study area is located in the nontussock sedge, dwarf-shrub, and moss tundra. The study area includes zones of upper and lower littoral as well as dry rocky tundra, wet prairies, and ponds. These plant communities are dominated by sedges,

grasses, and dwarf-willows. Usually, these communities have similar plant species composition, but species are present in different proportions, depending on drainage and water saturation. Snow beds are potentially present. They are generally located downwind in areas where topography favours the accumulation of snow. The plant community that colonizes this area is distinct and needs the snow cover's protection.

The following species were identified during a field visit in July 2015: *Papaver labradoricum*, the Dwarf Fireweed (*Chamerion latifolium*), Seaside-sandwort (*Honckenia peploides*), Silverweed (*Potentilla anserina*), Arctic campion (*Silene involucreta*), Sea thrift (*Armeria maritima* subsp. *Sibirica*), and Field horsetail (*Equisetum arvense*). Species from the following genera were also present: *Carex* sp., *Poa* sp., *Oxytropis* sp., *Pedicularis* sp., *Salix* sp., *Eriophorum* sp., *Ranunculus* sp., *Eriophorum* sp., *Stellaria* sp., and *Cerastium* sp.

The following photographs illustrate the vegetation present in the construction area.



Figure 2-10: Terrestrial Vegetation

2.3.2.2 MARINE VEGETATION

This type of vegetation can be more or less dense, depending on the tides and the topography of the seabed. The number of observed taxa will vary according to the same criteria, although many other factors can come into play (e.g. sunshine, temperature, salinity). The study area is characterized by the low quantities of vegetation; only some algae is present.

2.3.2.3 TERRESTRIAL MAMMALS

Some species of land mammals are likely to be observed in the study area. Among these, one can identify the Ungava lemming (*Dicrostonyx hudsonius*), meadow voles (*Microtus pennsylvanicus*), Arctic fox (*Alopex lagopus*), caribou (*Rangifer tarandus*), Arctic hare (*Lepus arcticus*), stoat (*Mustela erminea*) and polar bears (*Ursus maritimus*). The polar bear has been identified by the COSEWIC as a species of special concern. In the local study area it is likely that only small mammals will be present.

2.3.2.4 AVIFAUNA

Several species are potentially present in the study area, including some species of waterfowl, birds of prey, so-called terrestrial species and waders. Among these include the peregrine falcon (*Falco peregrinus*), the golden eagle (*Aquila chrysaetos*), gyrfalcon (*Falco rusticolus*), Canada goose (*Branta canadensis*), the red-necked phalarope (*Phalaropus lobatus*) Common eider (*Somateria mollissima*), the American robin (*Turdus migratorius*), Lapland longspur (*Calcarius lapponicus*), Savannah sparrow (*Passerculus sandwichensis*), the horned lark (*Eremophila alpestris*), the tundra swan (*Cygnus columbianus*) and the raven (*Corvus corax*). The regional study area includes confirmed nesting areas for the peregrine falcon and gyrfalcon. The peregrine falcon is a species of special concern in Canada.

There are no bird colonies in the vicinity of the work that will be undertaken. A raven was seen during a field visit in July 2015 (Figure 2-11).



Figure 2-11: Raven on a Lighting Bar, Local Study Area

2.3.2.5 ICTHYOFAUNA

Among the potentially present species, Arctic char (*Salvelinus alpinus*), Greenland cod (*Gadus ogac*), Arctic cod (*Boreogadus saida*), sculpins (*Cottoidea*) and sticklebacks (*Gasterosteidae*) are the species most likely to be found in the bay. Frobisher Bay is an area where Arctic char is abundant. The tidal zone is characterized by a large mud flat, with little vegetation. For these species, the low abundance of shelter and the predominance of mud make this habitat better for foraging than reproduction or nursing.

2.3.2.6 MARINE MAMMALS

About a dozen marine mammal species are likely to be found in the extended study area, some of which are of interest because of their abundance, status and/or their use by the Inuit people. These are the beluga (*Delphinapterus leucas*), minke whale (*Balaenoptera acutorostrata*), ringed seal (*Pusa hispida*), harp seal (*Pagophilus groenlandicus*), bearded seal (*Erignathus barbatus*) and the bowhead whale (*Balaena mysticetus*). Nevertheless the western part of Frobisher Bay is not included in the Ecologically and Biologically Significant Areas (EBSAs) of the Canadian Arctic according to Fisheries and Oceans Canada.

This does not mean that marine mammals do not use the regional study area from time to time during the year. However, the documents consulted do not report any seal haul out sites or marine mammal concentration zones. It is very unlikely that these species are present near the project's construction site.

2.3.3 SOCIOECONOMIC ENVIRONMENT

2.3.3.1 CITY OF IQALUIT

The project area is located in the city of Iqaluit. Iqaluit is the most populated community in Nunavut; in 2011 it was home to more than 6,699 individuals. It occupies an area of about 52 km². It also boasts the highest population of Inuits (3,900) of all Canadian cities over 5,000 people. English and Inuktitut are commonly spoken; 92% of people speak English but only 45% identify it as their mother tongue. Inuktitut is the mother tongue of about 46% of its residents. The average age of residents is 30 years with 1.4 children per family on average. There are 2,930 housing units within the city with an average of 2.8 individuals per household. The average income of residents is \$60,688.

As for general infrastructure, there are six (6) schools, one (1) post-secondary education institution, five (5) daycares, one (1) hospital and three (3) gas stations. A quarry is also open in the city and is operated by Kudlik Construction Ltd. There are also eight (8) different places where to lodge. The city also houses the Legislative Assembly of Nunavut, it being the capital of Nunavut.

There is a wide range of services offered in the capital city; it is the location of many northern head offices for many businesses and organizations. There are about 450 registered service and retail businesses in the city.

2.3.3.2 LANDSCAPE

The zone in which the lighting structure would be installed is within Koojesse Inlet near the downtown area. Views on the approach lighting system are likely to filter to the Downtown, Lower Base and Lower Iqaluit sectors. The local study area is relatively flat while topography increases gradually towards the northeast (downtown Iqaluit) and towards the northwest limiting views within the Inlet and directing them outwards towards the Bay.

2.3.3.3 ARCHAEOLOGICAL AND CULTURALLY SIGNIFICANT SITES

There are two parks located in the near vicinity of the city: Sylvia Grinnell Territorial Park and Qaummaarviit Territorial Park. The first is readily accessible, only a 30-minute walk (2 km) from the city, while the latter is located 12 km away. As for other culturally significant sites, the community of Apex is known to be more traditional than the larger city (4.5 km). It is important to note that the "Road to Nowhere" is a popular spot amongst campers as it travels through the tundra and many lakes can be viewed from it (3 km away).

There is currently no information available on the archaeological potential in the areas where construction work would be undertaken.

2.3.3.4 LANDUSE

The city of Iqaluit is located in Koojesse Inlet and the Iqaluit International Airport right at its tip. One of the two main industrial sectors is found alongside the airport's infrastructure. In this zone, a pit and a quarry are in operation as well as industrial buildings associated with the airport's operations. The second industrial zone is located to the West of the downtown area, leading away from the city along Akiliq Drive. It is in this sector that the projected deep-water port is likely to be built. Closer to the city, four (4) large and eight (8) smaller reservoirs are found; a pipeline leaves the tank farm to supply the city. This pipeline crosses the

projected construction area before making its way downtown. There is also an electrical distribution line that is located alongside the pipeline in the vicinity of the work area.

The commercial and administrative activities are located in the heart of the Downtown area where the Legislative Assembly of Nunavut, the Iqaluit City Hall, Nunavut Arctic College, the RCMP, the governmental services and the main lodging/restaurant accommodations are found. The residential sectors are generally to the south-east of this downtown area located along the coast. A second smaller residential sector is found in Apex, located 4.5 km away to the east from the Downtown core.

Iqaluit is the region's access point for individuals travelling to other communities on Baffin Island and it is therefore quite active with tourists. The city offers a variety of activities for its visitors from culture, art, to wilderness adventures. It also is home to the Nunatta Sunakkutaangit Museum which hosts Inuit artifacts, interpretive displays and art. Local artists hold kiosks inside the Museum and visitors can readily purchase items.

From Koojesse Inlet, many outfitters offer marine adventures, from fishing trips, kayaking to whale and bird watching. Expeditions can also be arranged into the interior of the island for trekking, snowshoeing, northern light viewings, snowmobiling, ATV renting, skiing, dog sledding and hunting.

2.4 IDENTIFICATION OF IMPACTS AND PROPOSED MITIGATION MEASURES

Table 2-3 identifies the main environmental impacts associated with the construction and operation of the approach lighting infrastructure.

As mentioned previously, the approach lighting for the Iqaluit airport will need to be replaced. In order to do so, an access road will be built from the existing sewage lagoon road, which itself connects to Akilliq Drive, and extended to reach the site of the future breakwater. The land will need to be cleared and backfilled to meet the required road safety standards. Once the access road is completed, the breakwater will be built from the land by extending it into Koojesse Inlet with rubble provided by the Iqaluit quarry. Of the twelve (12) bars of approach lights, three (3) are currently on land and will be replaced. The remaining nine (9) will be located on the breakwater.

The main permanent impacts of the construction phase include:

- the permanent loss of vegetation due to the access road's footprint and the first section of the breakwater which will begin on land;
- the local change to the bathymetry due to the addition of the breakwater, and;
- the presence of the breakwater which represents a potential obstacle for local navigation.

All of these impacts are considered to be of low importance.

Most of the other construction impacts on ground stability, water/soil/sediment quality, air quality, noise disturbance, terrestrial and aquatic fauna and on archaeological and cultural components can be easily controlled through general mitigation measures normally included in the tender documents, such as for:

- Ground stability:
 - Limit the slopes steepness.
 - Avoid machinery and vehicle circulation over unstable areas.
 - Protect exposed soil surfaces in steep unstable areas to avoid initiating erosion.

- Restore vegetation cover of exposed areas as soon as work is completed.
- Water/soil/sediment quality:
 - Keep machinery in good working order.
 - Ensure that maintenance or refuelling is done over impervious surfaces and at least 60 m from the water.
 - Protect the pipeline along the construction area to prevent accidents.
 - Maintain spill prevention and recuperation material at the worksite, at all time.
- Air quality and noise disturbance:
 - Keep machinery in good working order.
 - Limit dust emission by spraying water on the work surface and at excavation sites during dry periods.
 - Limit work, as much as possible, to day work hours (7AM to 7PM).

At the moment, no known sensitive fauna and/or archaeological and cultural components are present at the work site, which would require general or specific mitigation. However, if such sensitive components are eventually identified mitigation measures will be developed at the execution phase.

A Spill Prevention Plan will be elaborated by the contractor that is awarded the construction work for this project. The main components of a Spill Prevention Plan include:

- General information (company details, date of issue, date of last revision, distribution list, objectives and content, copy of the company's environmental policy, project and site information, product list of items that will be present on the site, preventive measures in place, etc.);
- Incident communication structure (flowchart);
- Action plan (possible impacts, proposed actions, etc.);
- Inventory of resources for interventions (on and off-site);
- Employee training register.

Positive impacts will also occur, through the creation of local employment and through the improvement of the airport's security and accessibility in poor weather conditions.

At the operation phase, the main impacts are associated with the maintenance requirements, the presence of the breakwater and the presence of the approach lighting system. For maintenance requirements, impacts will be essentially associated with access road maintenance which will require snow removal and occasional grading. The same mitigatable impacts will occur in operation due to machinery circulation and spill risks (to sediment, soil and water quality). Appendix E presents the pertinent sections of the airport's Emergency Response Plan that outline, amongst others, the appropriate actions in the event of spills.

The breakwater will present a small modification to local landscape and a new component to be considered by local residents when boating in the area.

The effect on landscape cannot be mitigated but it is not considered important. The effects on navigation include necessitating passage over an underwater obstacle (a residual section of an abandoned breakwater located to the east of the new breakwater) in order to reach the current sealift landing beach. This underwater obstacle could be removed in the course of the project, which would improve navigation in the area and limit the effect of the new structure.

The operation of the approach lighting system could possibly interact with a navigation beacon of the CCG. This concern was identified in the consultations held with the federal governmental agencies. Discussions are underway to verify if boats entering the channel could misinterpret the airport lights for navigation beacons. In this scenario, a technical solution will be developed in cooperation with Coast Guards Canada.

There are no transboundary and human health effects associated with this project.

2.5 CUMULATIVE EFFECTS

At this point in time, there are no significant negative impacts expected with the project's realization. However, this will need to be validated with the marine users in the area. Consequently, no cumulative effect study will be conducted.

2.6 SUPPORTING DOCUMENTS

See relevant appendices (C and E).

Table 2-3: Identification of Environmental Impacts

Environmental Components / Project Activities		PHYSICAL													BIOLOGICAL					SOCIO-ECONOMIC						
		Designated environmental areas (i.e. Parks, Wildlife Protected areas)	Ground stability	Permafrost	Hydrology/ limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	Light pollution	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health	Landscape	Land use
CONSTRUCTION	Land clearing to build access road		M			M				M		M	M		N	M	M			M	P					
	Construction of access road		M			M				M		M	M							M	P					
	Construction of breakwater					M				M	N	M	M				M	M		M	P		P			
	Transport and circulation		M			M				M		M	M								P					
OPERATION	Presence of the breakwater/lighting infrastructure										N			M											N	
	Maintenance and repairs		M			M				M					N	M	M	M								
	Transport and circulation		M			M				M		M	M													
DECOMMISSIONING	To be determined																									

Note: Please indicate in the matrix cell whether the interaction causes an impact and whether the impact is
P = Positive N = Negative and non-mitigatable M = Negative and mitigatable U = Unknown If no impact is expected please leave the cell blank

3 REFERENCES

- Canadian Hydrographic Survey (CHS). 2014. *Tidal Data at Iqaluit Station #4140*. 1963-1977.
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Appendix A

PART 1 FORM IN INUKTITUT

Appendix B

PRELIMINARY TECHNICAL DRAWINGS

APPENDIX 'L'

IQALUIT

INTERNATIONAL AIRPORT

RUNWAY 34 APPROACH LIGHTING REPLACEMENT

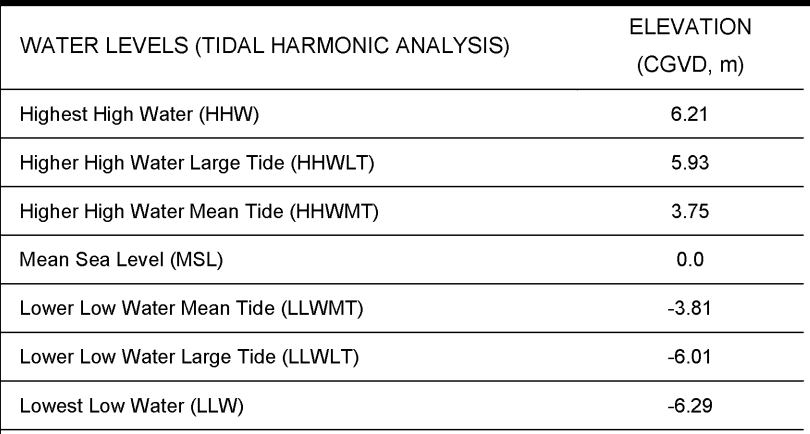


INDEX

<u>SHEET No.</u>	<u>DESCRIPTION</u>
SP1	SITE PLAN
C001	PROPOSED BREAKWATER STRUCTURE PLAN AND PROFILE STA. 7+780 TO STA. 8+450
C002	PROPOSED BREAKWATER STRUCTURE TYPICAL CROSS SECTIONS 1
C003	PROPOSED BREAKWATER STRUCTURE TYPICAL CROSS SECTIONS 2
C004	ACCESS ROAD PLAN AND PROFILE STA. 0+000 TO STA. 0+305
E001	ELECTRICAL LAYOUT
E002	RUNWAY 34 SSALR PLAN AND PROFILE STA. 7+600 TO STA. 8+175
E003	RUNWAY 34 SSALR PLAN AND PROFILE STA. 8+175 TO STA. 8+440
E004	ELECTRICAL DETAILS 1
E005	ELECTRICAL DETAILS 2
E006	ELECTRICAL DETAILS 3



ACAP SUBMISSION
MARCH 31, 2016
WSP No. 151-07326-00



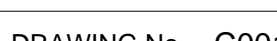
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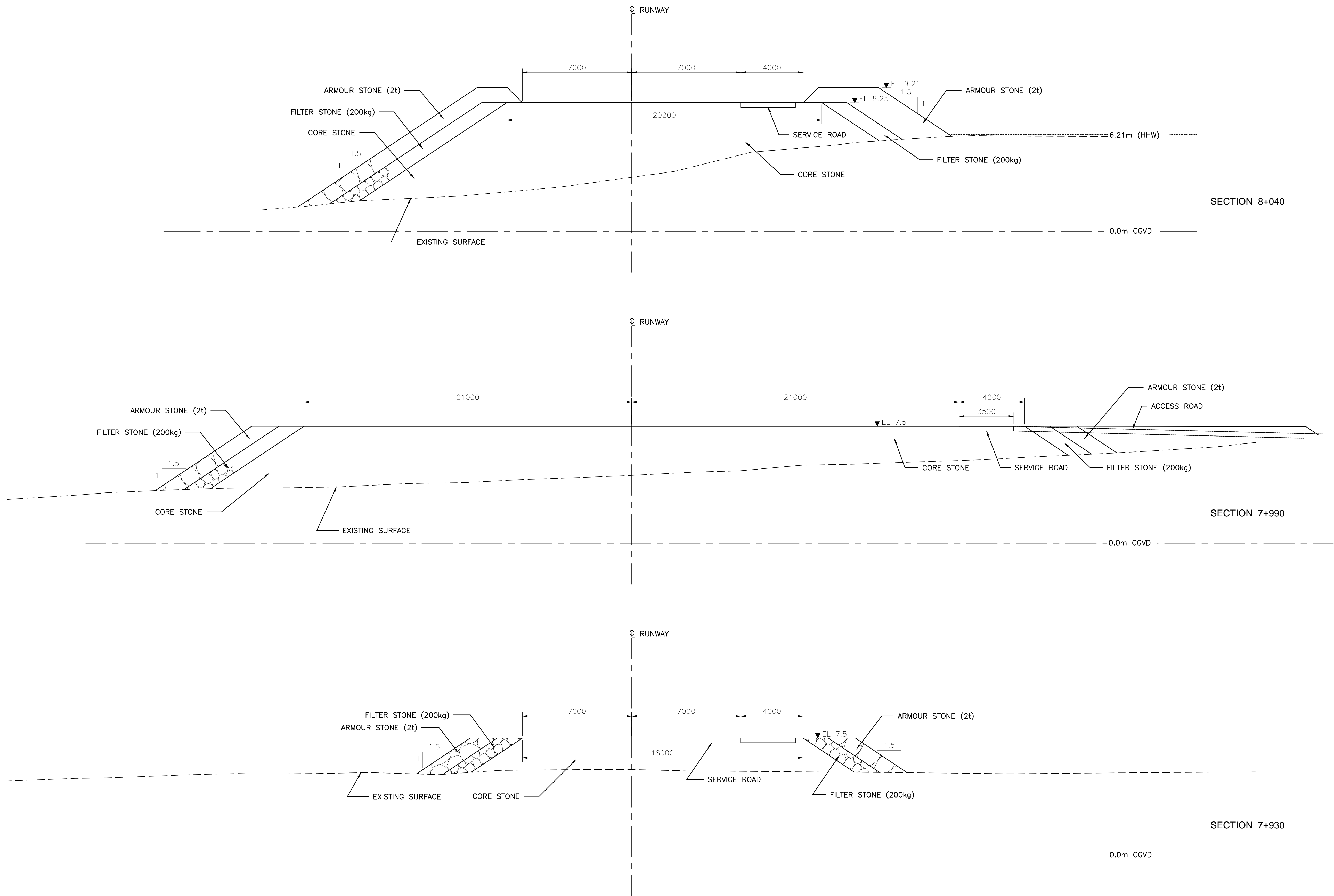
The diagram consists of two horizontal number lines. The top number line is labeled 'METRES' at the right end. It has markings at 10, 0, 5, 15, 25, 50, and 75. The bottom number line is labeled 'FEET' at the right end. It has markings at 50, 0, 25, 50, 100, and 250. The 75 metre segment is equivalent to the 250 foot segment.

[illegible]

Seals



ARCHI expand D (24.00 x 36.00 inches)
P:\CYFB\151-07326-00\Iqaluit\Rev 36 SSAL\FCD\151-07326-00 - Breakwater Typical Sections.dwg
March 24, 2016



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Scale - NOT TO SCALE

Key Plan

Benchmark Information

0	MAR 31/16	ACAP SUBMISSION	ILR	BD
No.	DATE	DESCRIPTION	BY	APPD
		REVISION / ISSUE		

Seals

WSP

Client: GOVERNMENT OF NUNAVUT

Project: IQALUIT INTERNATIONAL AIRPORT RUNWAY 34 APPROACH LIGHTING REPLACEMENT

Title: PROPOSED BREAKWATER STRUCTURE TYPICAL CROSS SECTIONS 1

WSP Project No. 151-07326-00	Contract No. TBD
Design: CG, NG	Checked: BD
Drawn: CG	DRAWING No. C002

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Seals

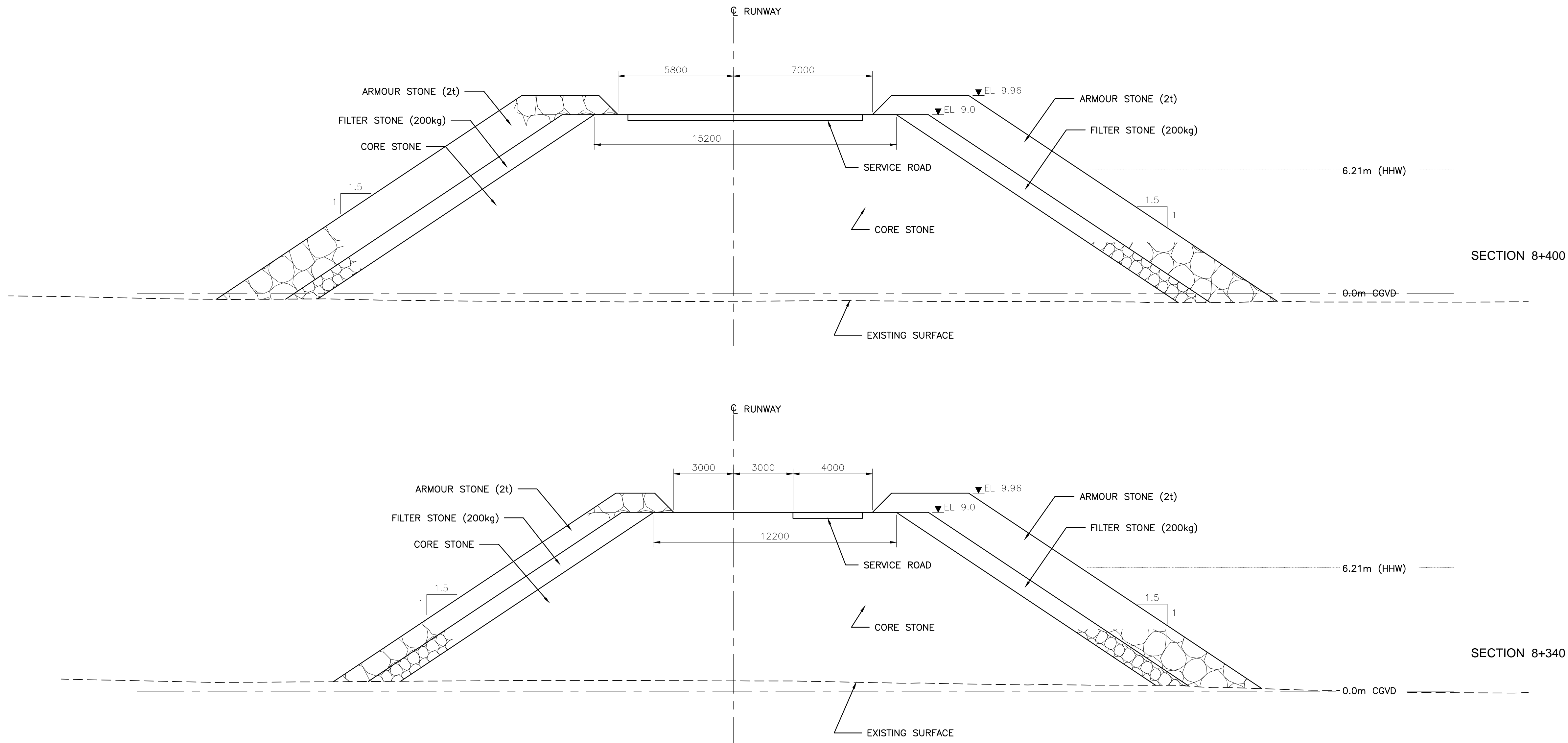


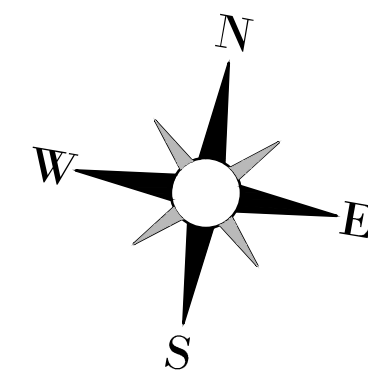
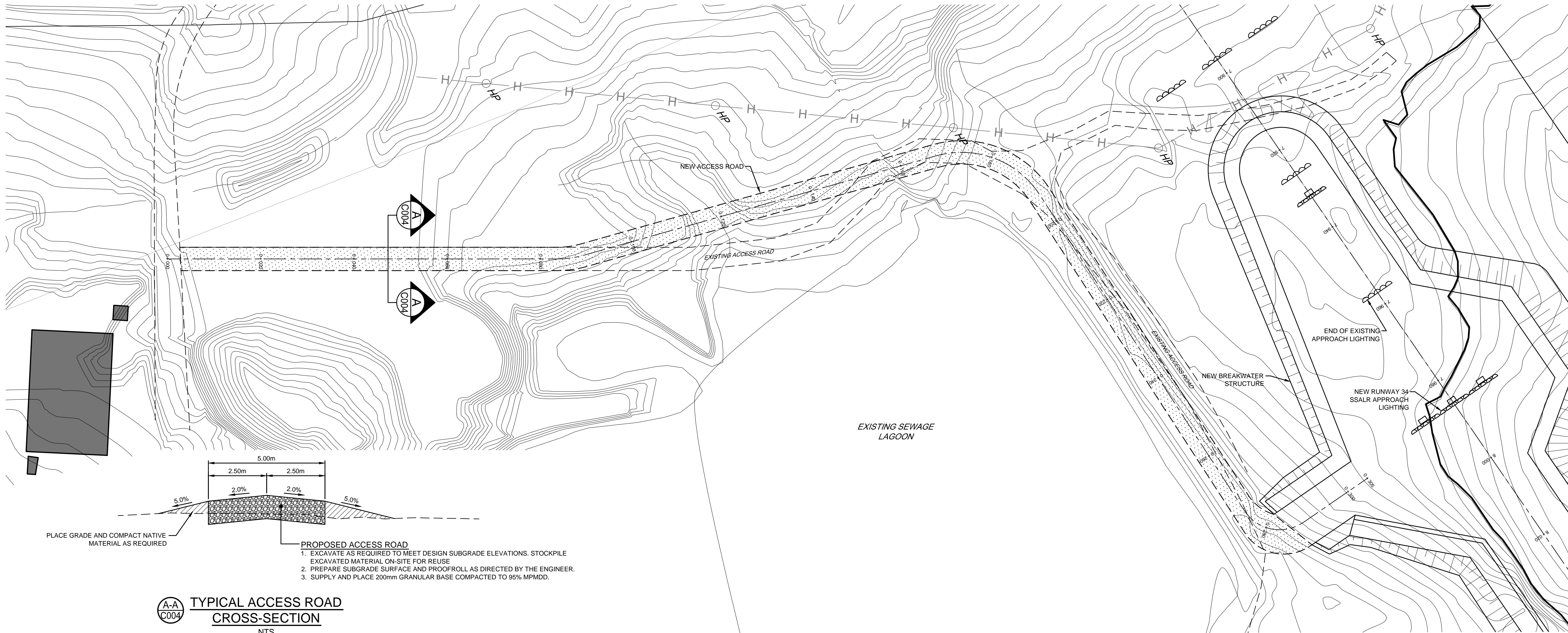
Client: GOVERNMENT OF NUNAVUT

Project: IQALUIT INTERNATIONAL AIRPORT
RUNWAY 34 APPROACH LIGHTING
REPLACEMENT

Title: PROPOSED BREAKWATER STRUCTURE
TYPICAL CROSS SECTIONS 2

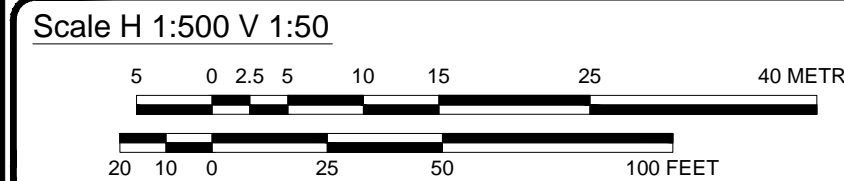
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REVISION / ISSUE				

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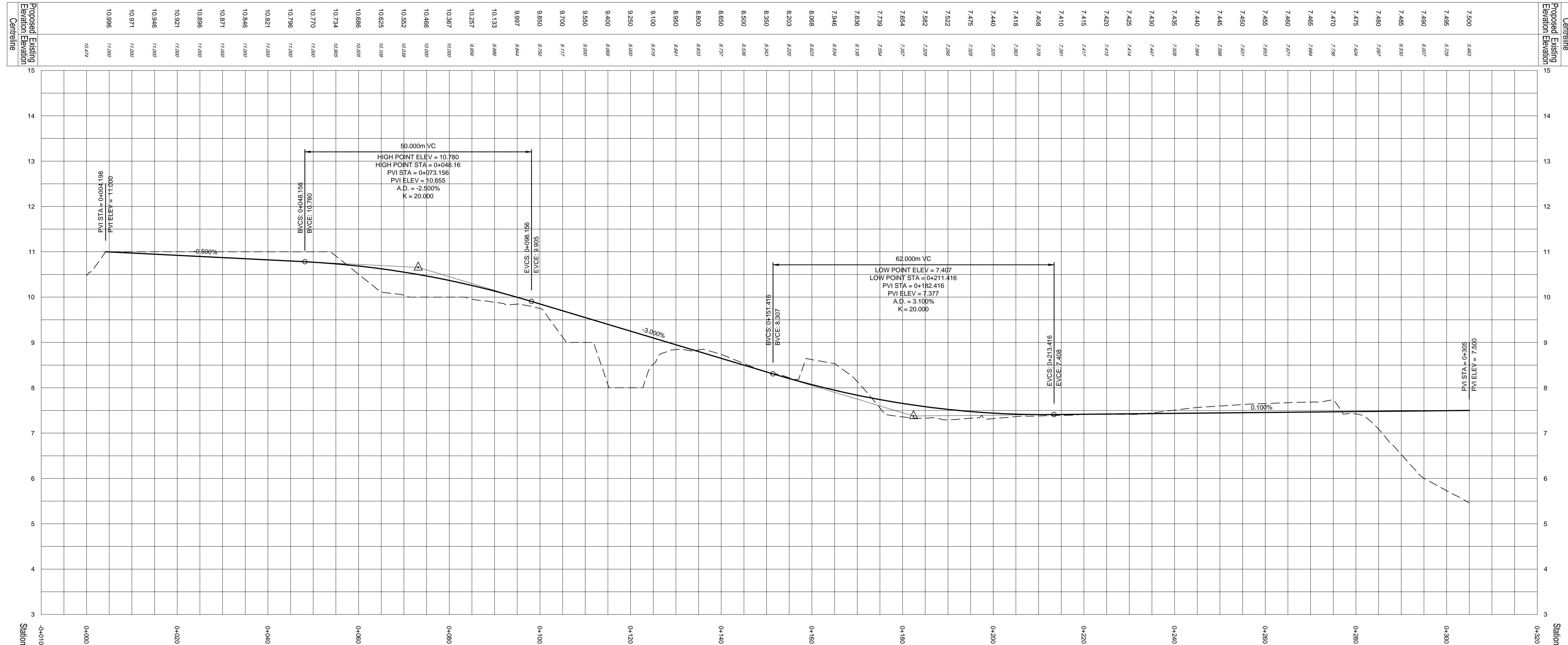
Project: IQALUIT INTERNATIONAL AIRPORT
RUNWAY 34 APPROACH LIGHTING
REPLACEMENT

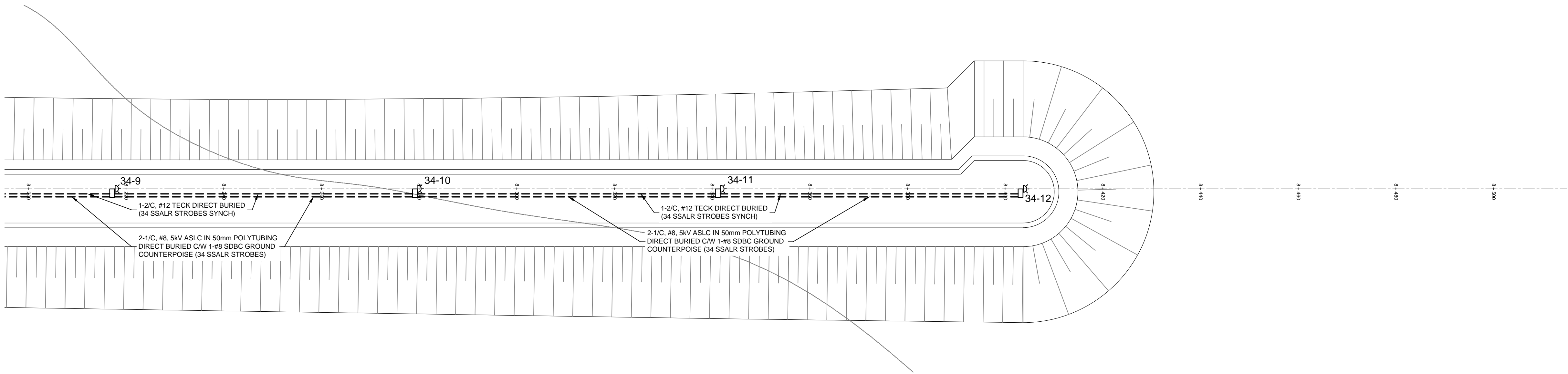
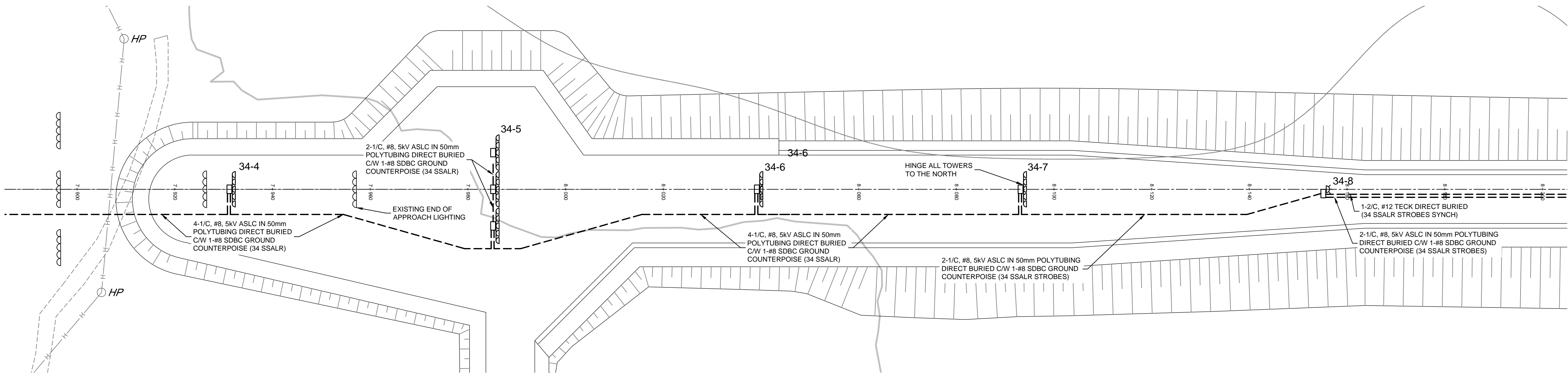
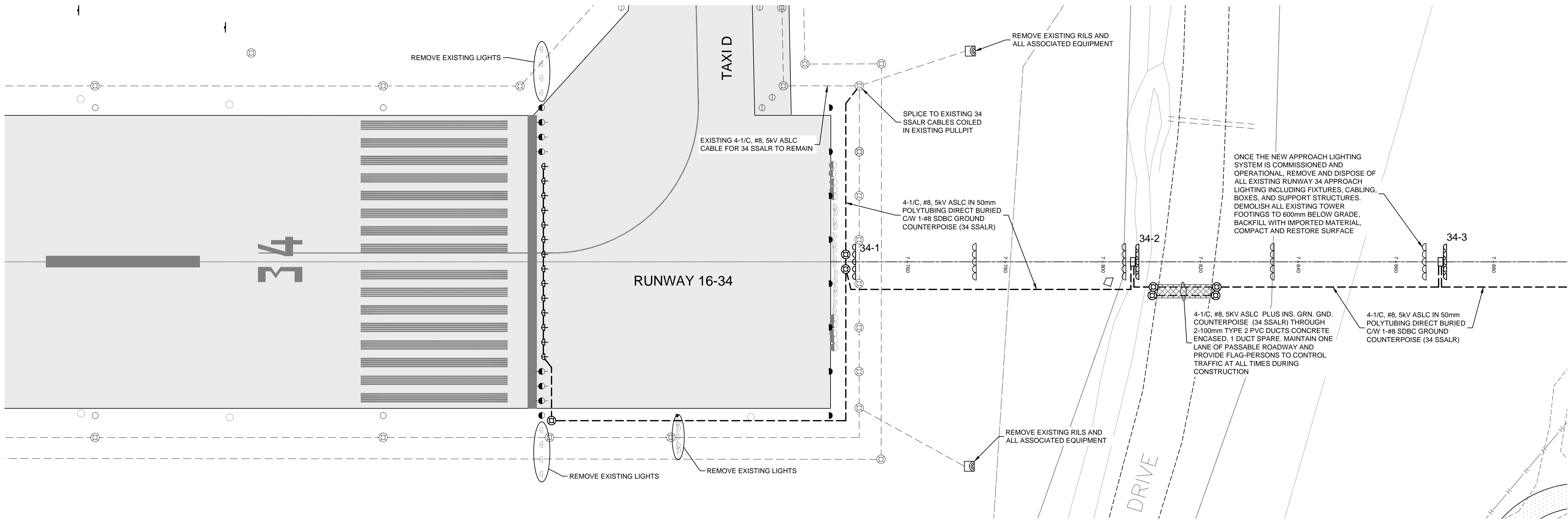
Title: ACCESS ROAD
PLAN AND PROFILE
STA. 0+000 TO STA. 0+305

WSP Project No. 151-07326-00	Contract No. TBD
Design: ILR	Checked: BD
Drawn: MG	DRAWING No. C004

**TYPICAL ACCESS ROAD
CROSS-SECTION**
NTS

- PROPOSED ACCESS ROAD
1. EXCAVATE AS REQUIRED TO MEET DESIGN SUBGRADE ELEVATIONS. STOCKPILE EXCAVATED MATERIAL ON-SITE FOR REUSE
 2. PREPARE SUBGRADE SURFACE AND PROOFROLL AS DIRECTED BY THE ENGINEER.
 3. SUPPLY AND PLACE 200mm GRANULAR BASE COMPACTED TO 95% MPMD.



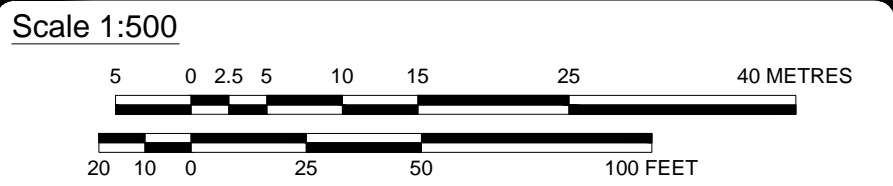


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LEGEND	
---	UNDERGROUND CABLE OR RACEWAY AS NOTED
⬤	INSET GREEN UNIDIRECTIONAL THRESHOLD APPROACH LIGHT
⬤	ELEVATED UNIDIRECTIONAL WHITE APPROACH LIGHT (STEADY BURNING)
⬤	ELEVATED UNIDIRECTIONAL WHITE APPROACH LIGHT (STROBE)
⊙	PULLPIT
⬤	TOWER MOUNTED TRANSFORMER ENCLOSURE
⬤	CONCRETE ENCASED DUCTBANK
○	EXISTING ELEVATED CLEAR RUNWAY EDGELIGHT
⬤	EXISTING ELEVATED BLUE TAXIWAY EDGELIGHT
⬤	EXISTING ELEVATED GREEN/RED THRESHOLD/END LIGHT
⬤	EXISTING INSET GREEN/RED THRESHOLD/END LIGHT
⬤	EXISTING ELEVATED UNIDIRECTIONAL GREEN WINGBAR LIGHT
⬤	EXISTING ELEVATED RED RUNWAY END LIGHT



Key Plan

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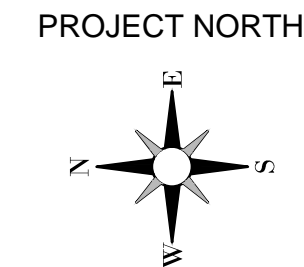
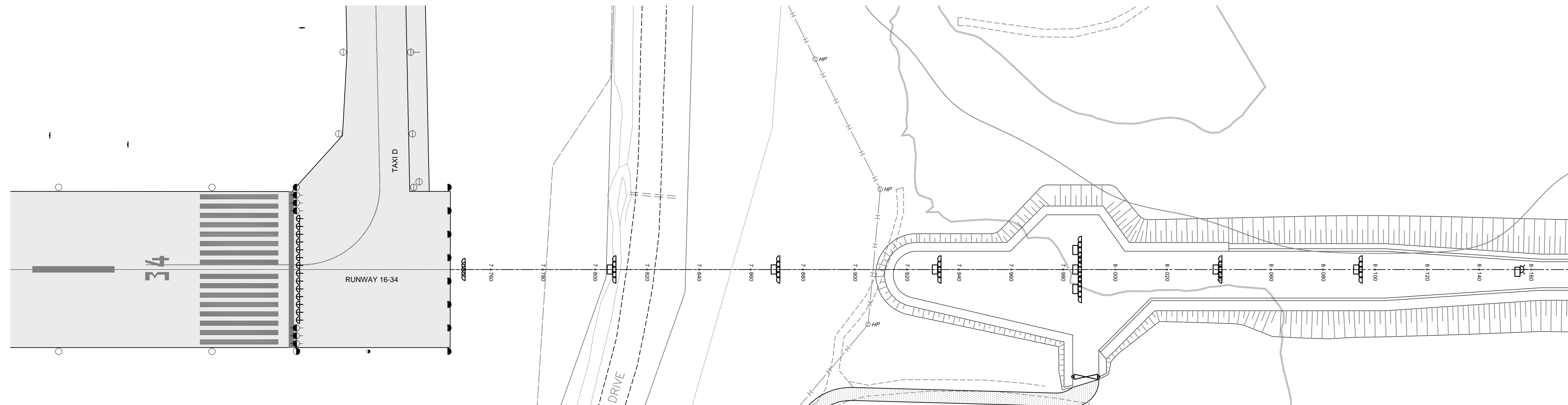
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Client: GOVERNMENT OF NUNAVUT

Project: IQALUIT INTERNATIONAL AIRPORT RUNWAY 34 APPROACH LIGHTING REPLACEMENT

Title: RUNWAY 34 SSALR ELECTRICAL LAYOUT

WSP Project No. 151-07326-00	Contract No. TBD
Design: L2	Checked: RB
Drawn: L2	DRAWING No. E001



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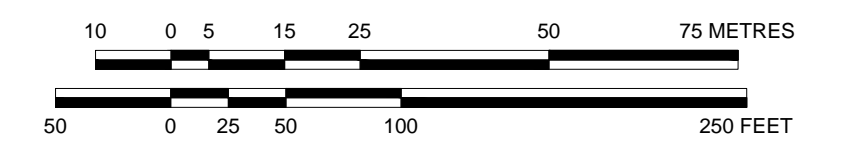
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LEGEND

-----	UNDERGROUND CABLE OR RACEWAY AS NOTED
⊕	INSET GREEN UNIDIRECTIONAL THRESHOLD APPROACH LIGHT
⊕	ELEVATED UNIDIRECTIONAL WHITE APPROACH LIGHT (STEADY BURNING)
⊕	ELEVATED UNIDIRECTIONAL WHITE APPROACH LIGHT (STROBE)
⓪	PULLPIT
□	TOWER MOUNTED TRANSFORMER ENCLOSURE
⊠	CONCRETE ENCASED DUCTBANK
○	EXISTING ELEVATED CLEAR RUNWAY EDGELIGHT
○	EXISTING ELEVATED BLUE TAXIWAY EDGELIGHT
●	EXISTING ELEVATED GREEN/RED THRESHOLD/END LIGHT
⊕	EXISTING INSET GREEN/RED THRESHOLD/END LIGHT
⊕	EXISTING ELEVATED UNIDIRECTIONAL GREEN WINGBAR LIGHT
⊕	EXISTING ELEVATED RED RUNWAY END LIGHT

Scale H 1:1000 V 1:100



Key Plan

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No.	DATE			DESCRIPTION				BY	APPO
				REVISION / ISSUE					

Seals



Client: **GOVERNMENT OF NUNAVUT**

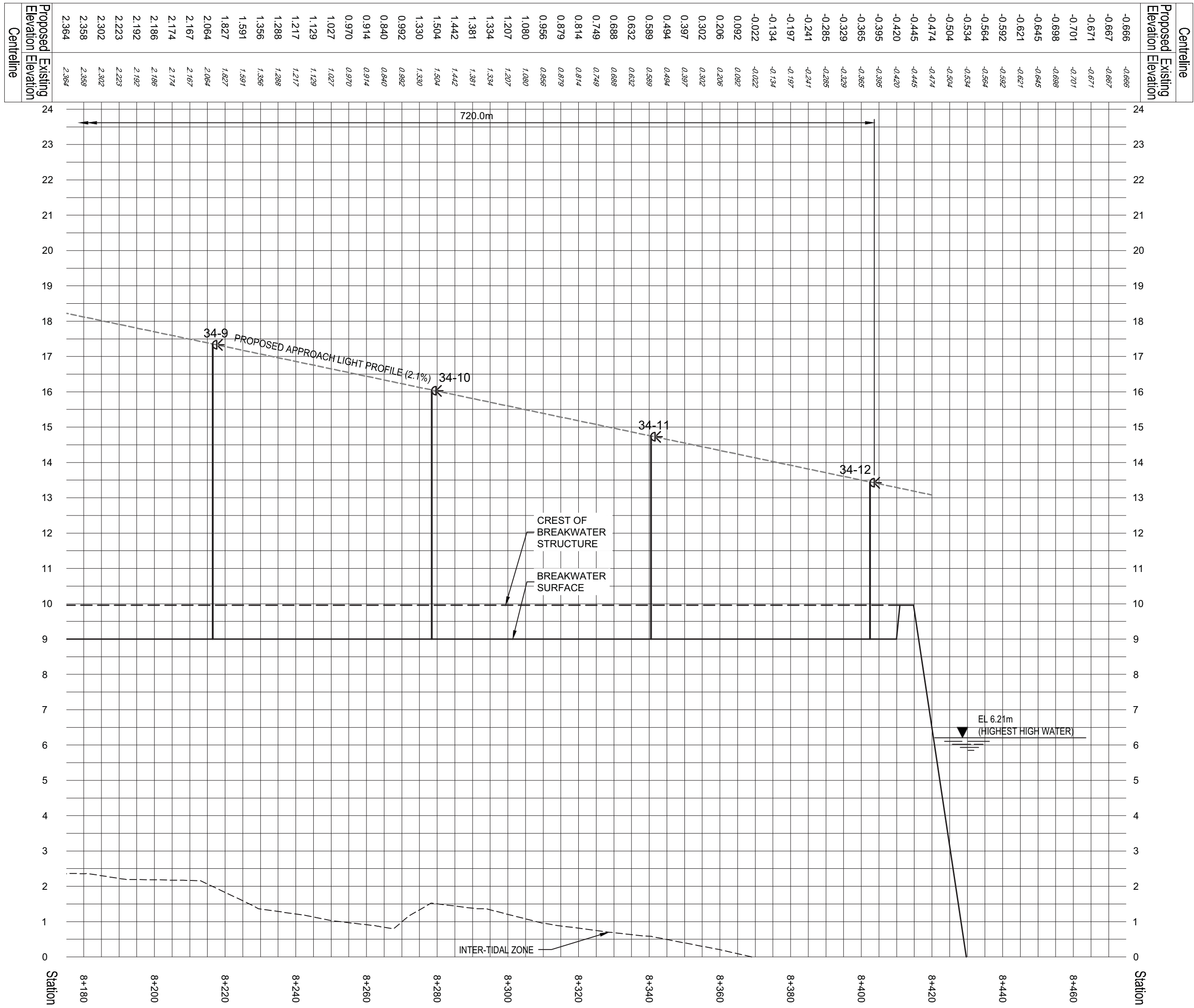
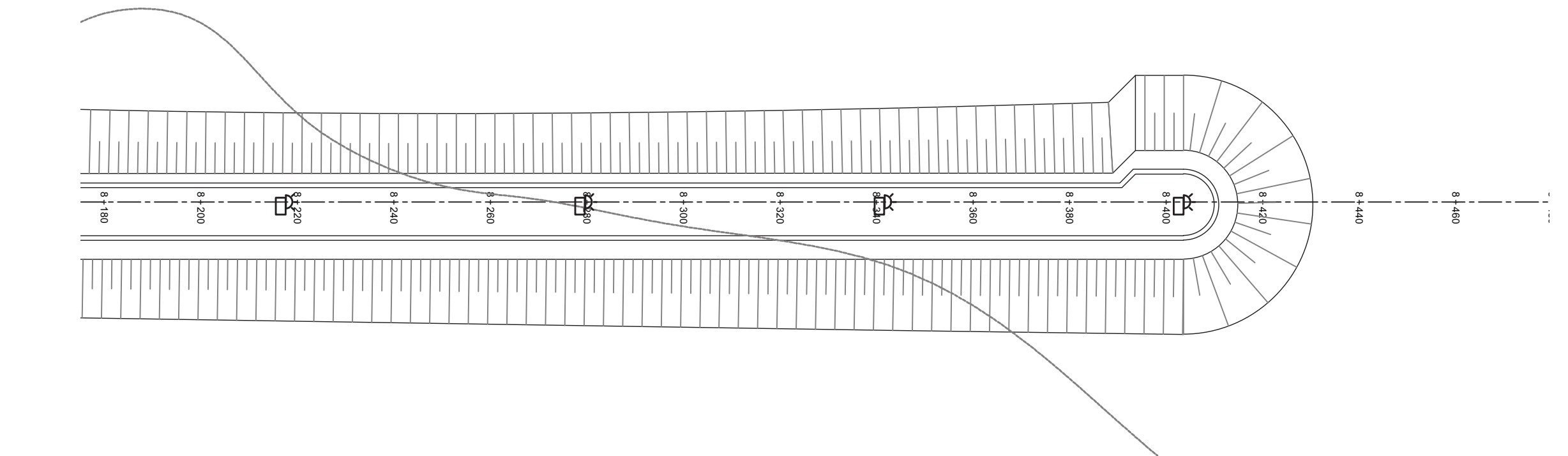
Project: IQALUIT INTERNATIONAL AIRPORT
RUNWAY 34 APPROACH LIGHTING
REPLACEMENT

Title:	<p>RUNWAY 34 SSALR PLAN AND PROFILE STA. 7+600 TO STA. 8+175</p>
--------	--

WSP Project No.	151-07326-00	Contract No.	TBD
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Drawn:	L2	DRAWING No.	E002

Letter
P:\C\FB 151-07326-00 Iqaluit Rwy 35 SS\A\RICAD\151-07326-00 - E001 - Electrical Layouts.dwg
March 30, 2016

Letter 18 15-07326-00 Iqaluit Runway 34 SSALR/CAD 151-07326-00 E001 - Electrical Layout.dwg
March 20, 2015



Runway 34 SSALR Approach Light Installation								
Feature / Bar Label	Bar Type	Station	Distance From Previous Light (m)	Distance From Threshold (m)	Finished Grade Elevation (m ASL)	Light Elevation (m ASL)	Light/Feature Elevation Relative To Threshold (m)	Mount Type
34 Threshold	N/A	7+683.7	N/A	0.0	21.772	N/A	N/A	N/A
34-1	Steady	7+748.7	65.0	65.0	21.049	22.122	0.350	Pipe
34-2	Steady	7+806.7	58.0	123.0	14.382	22.122	0.350	Hinged Tower
Road	N/A	7+816.7	N/A	133.0	14.175			N/A
34-3	Steady	7+869.7	63.0	186.0	8.015	21.492	-0.280	Hinged Tower
34-4	Steady	7+931.7	62.0	248.0	7.498	20.872	-0.900	Hinged Tower
34-5	Steady	7+985.7	54.0	302.0	7.524	20.332	-1.440	Hinged Tower
34-6	Steady	8+039.7	54.0	356.0	8.199	19.792	-1.980	Hinged Tower
34-7	Steady	8+093.7	54.0	410.0	8.874	19.252	-2.520	Hinged Tower
34-8	Flasher	8+155.7	62.0	472.0	8.998	18.632	-3.140	Hinged Tower
34-9	Flasher	8+217.7	62.0	534.0	8.998	17.33	-4.442	Hinged Tower
34-10	Flasher	8+279.7	62.0	596.0	8.998	16.028	-5.744	Hinged Tower
34-11	Flasher	8+341.7	62.0	658.0	8.998	14.726	-7.046	Hinged Tower
34-12	Flasher	8+403.7	62.0	720.0	8.998	13.424	-8.348	Hinged Tower

Notes:
1. Elevation of lights is to the centre of the light fixture lens.

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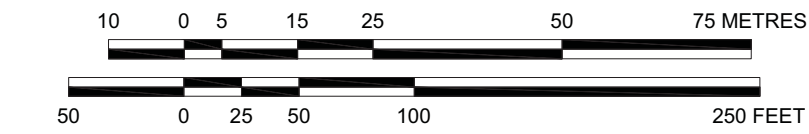
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LEGEND	
---	UNDERGROUND CABLE OR RACEWAY AS NOTED
⬇	INSET GREEN UNIDIRECTIONAL THRESHOLD
⬇	APPROACH LIGHT
⬇	ELEVATED UNIDIRECTIONAL WHITE APPROACH LIGHT (STEADY BURNING)
⬇	ELEVATED UNIDIRECTIONAL WHITE APPROACH LIGHT (STROBE)
⬇	PULLPIT
⬇	TOWER MOUNTED TRANSFORMER ENCLOSURE
⬇	CONCRETE ENCASED DUCTBANK
⬇	EXISTING ELEVATED CLEAR RUNWAY EDGELIGHT
⬇	EXISTING ELEVATED BLUE TAXIWAY EDGELIGHT
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⬇	EXISTING ELEVATED UNIDIRECTIONAL GREEN WINGBAR LIGHT
⬇	EXISTING ELEVATED RED RUNWAY END LIGHT

Scale H 1:1000 V 1:100



Key Plan

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0	MAR 31/16	ACAP APPLICATION	RB	BD
REVISION / ISSUE				

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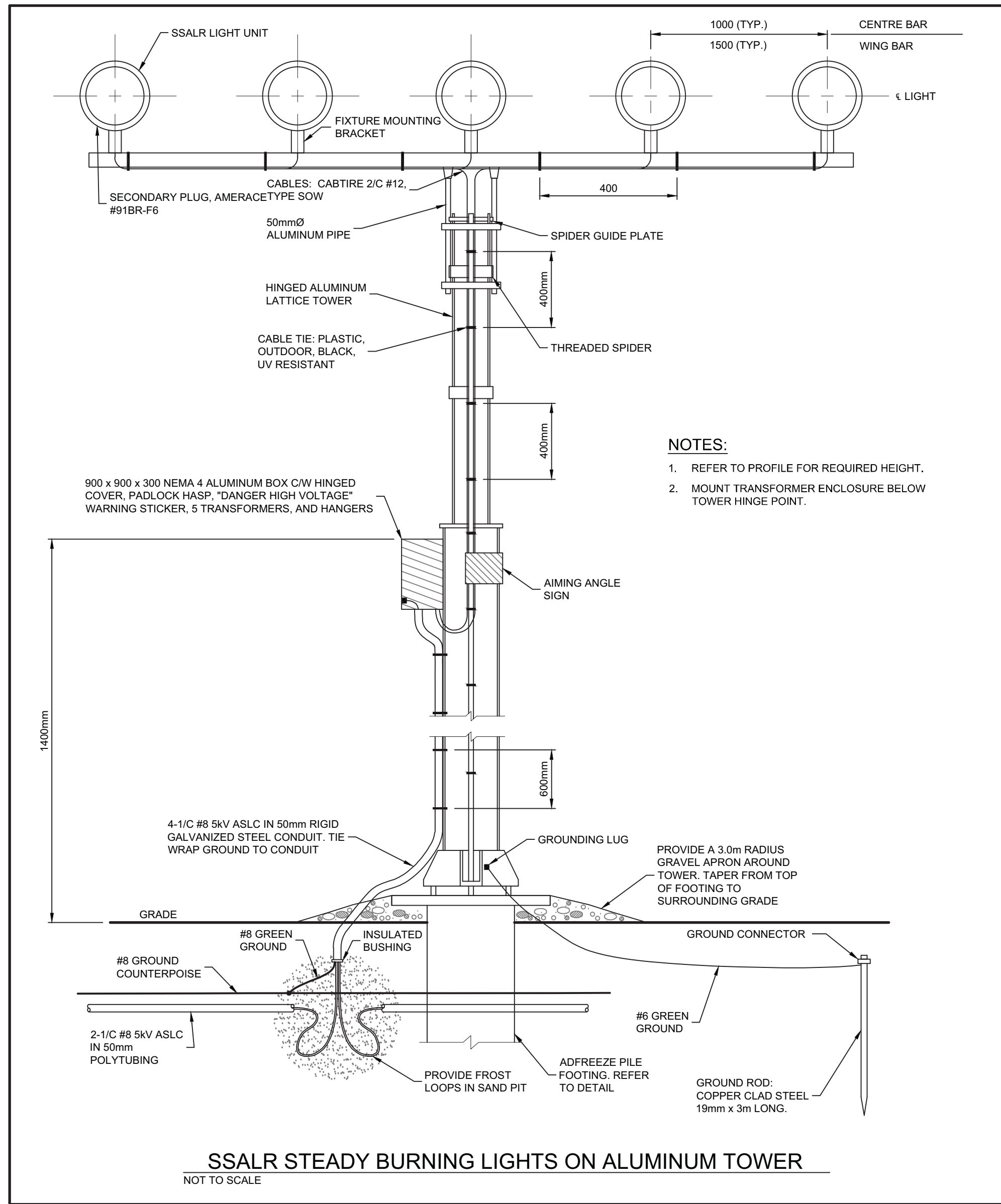
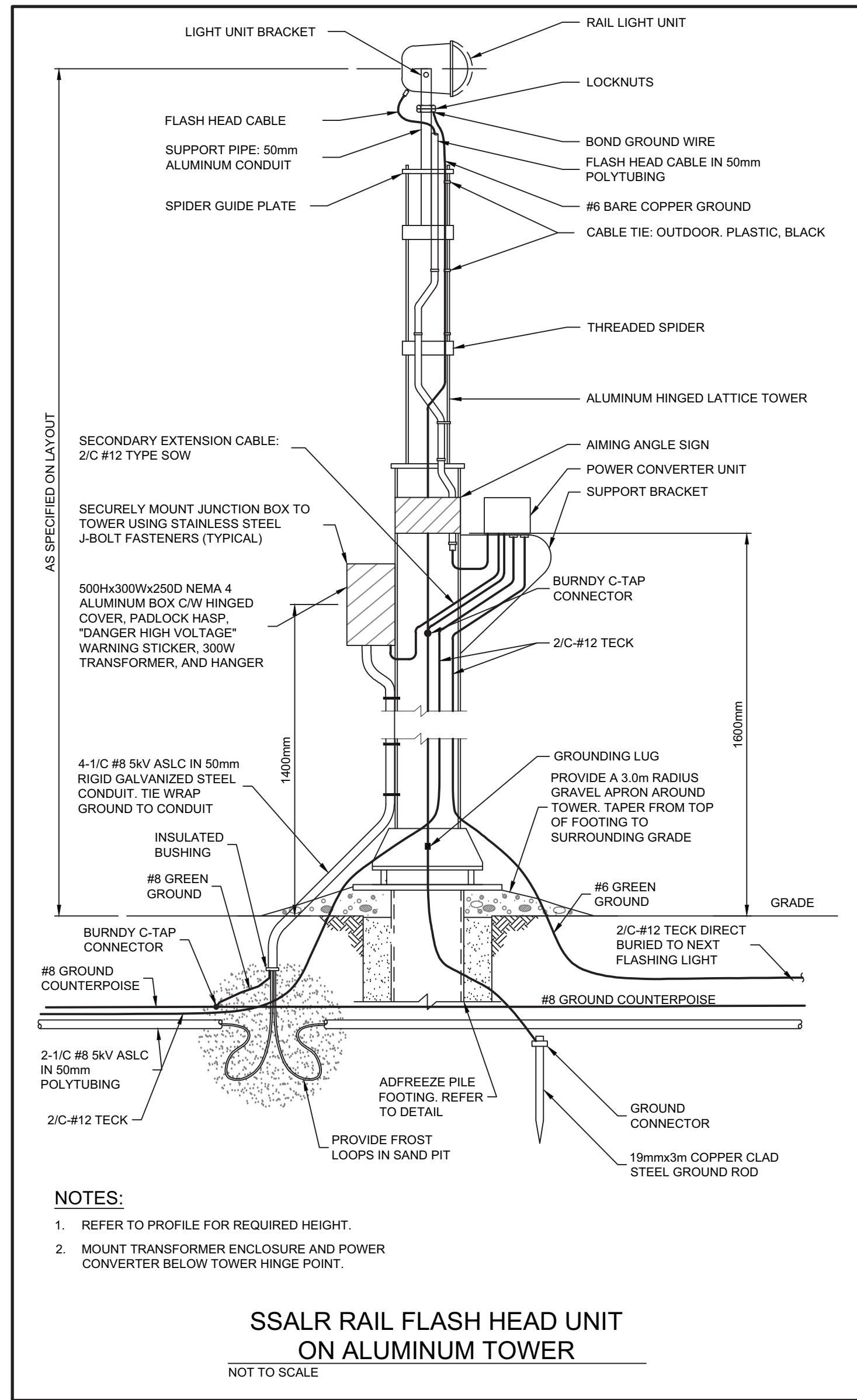
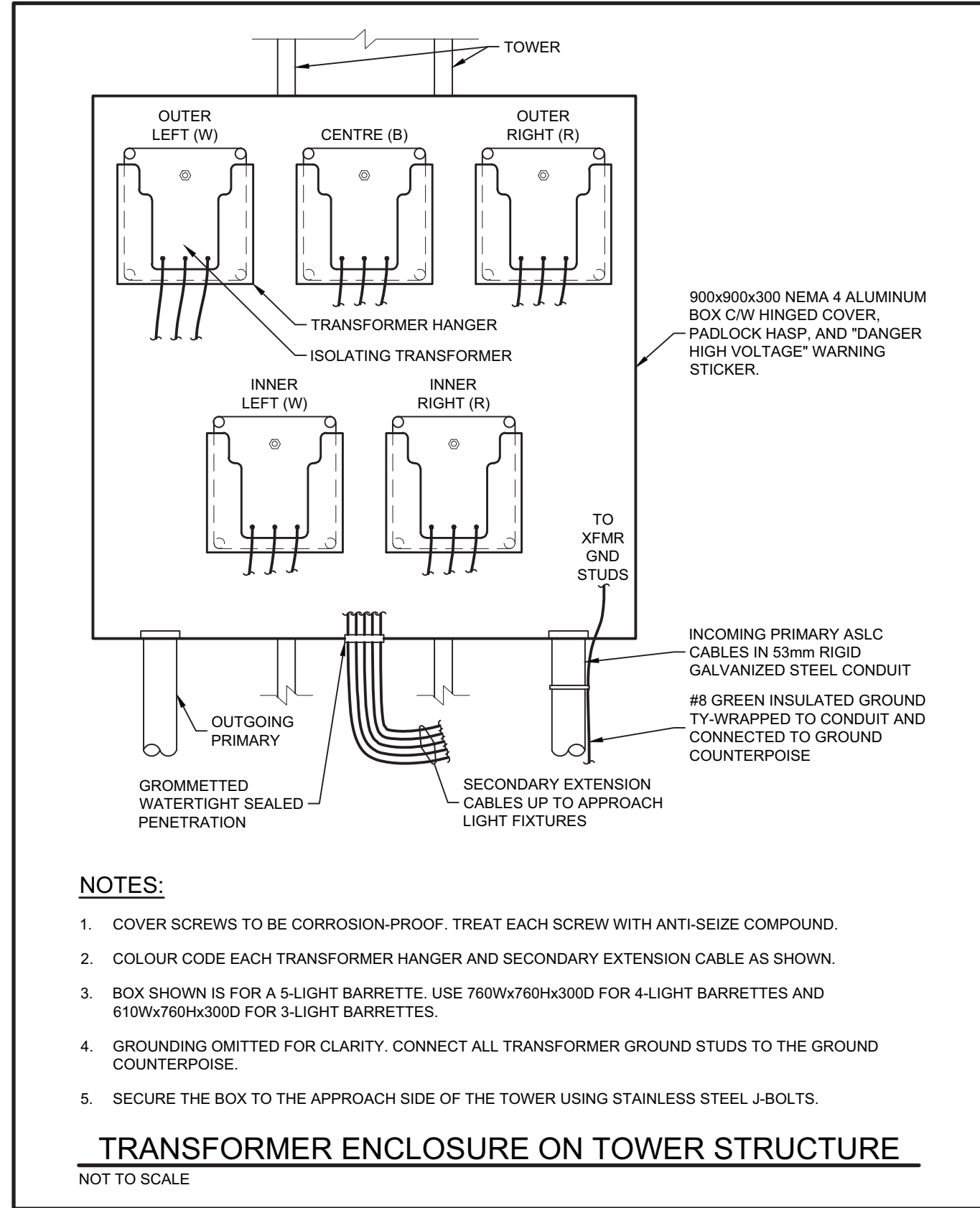
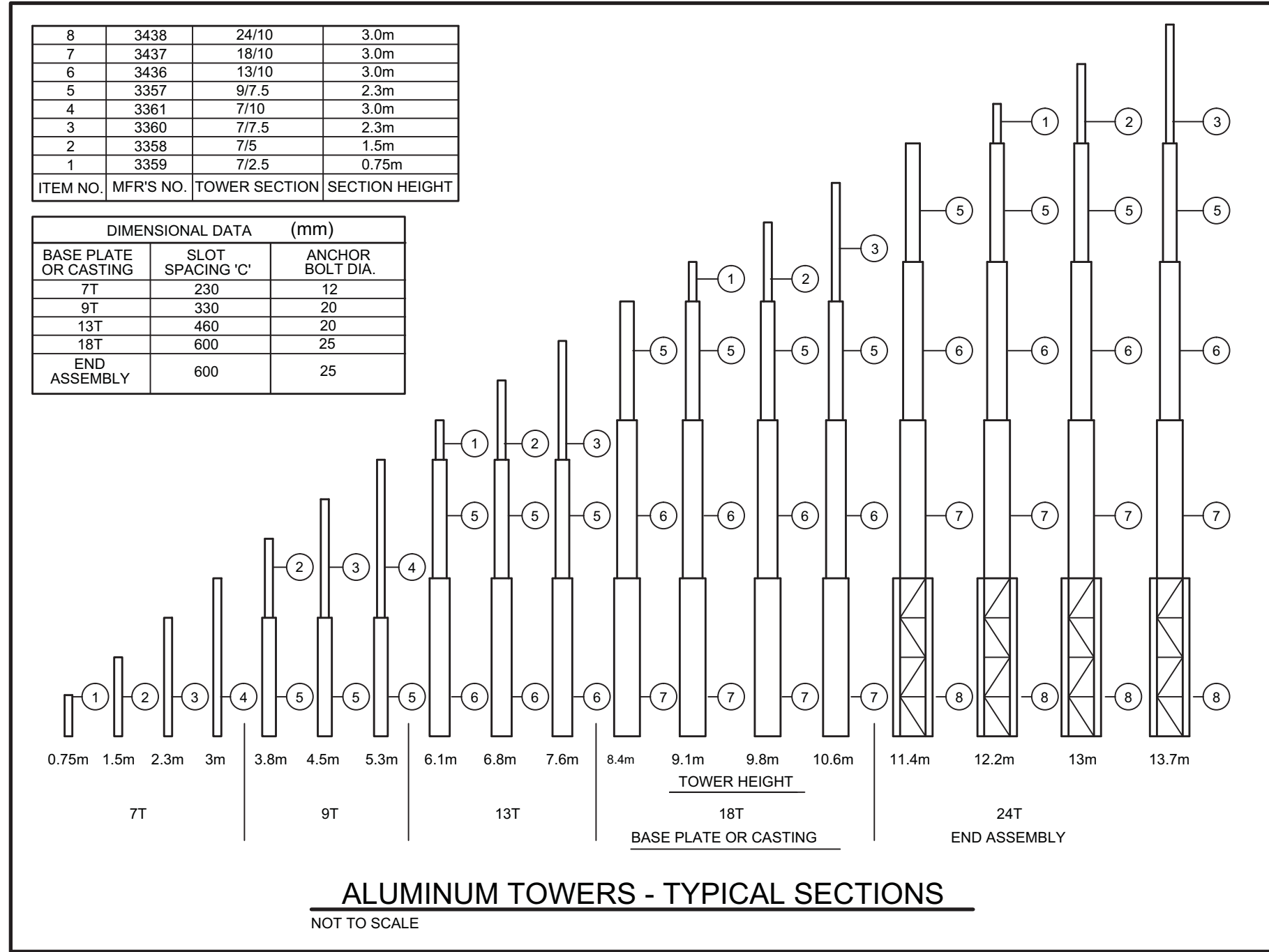
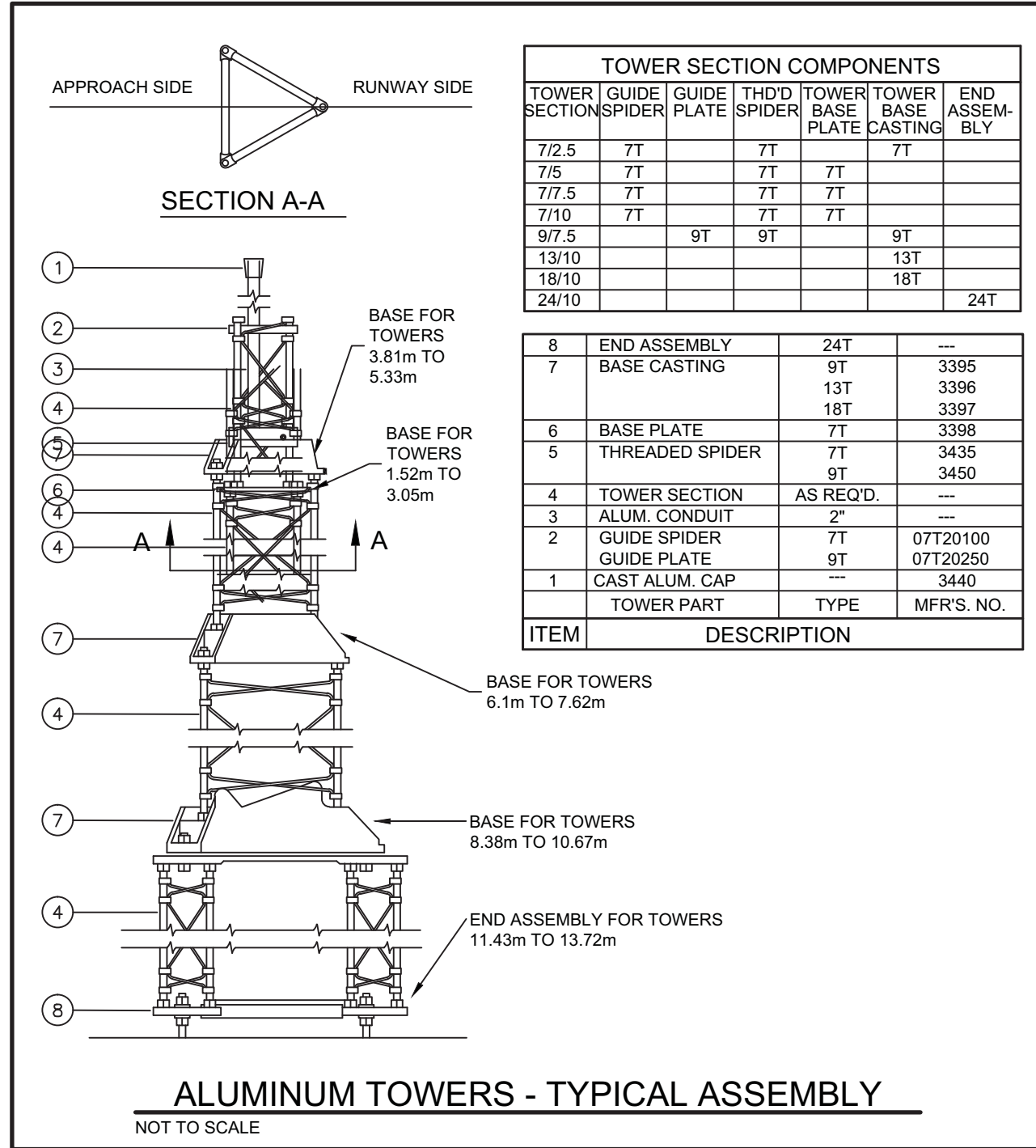
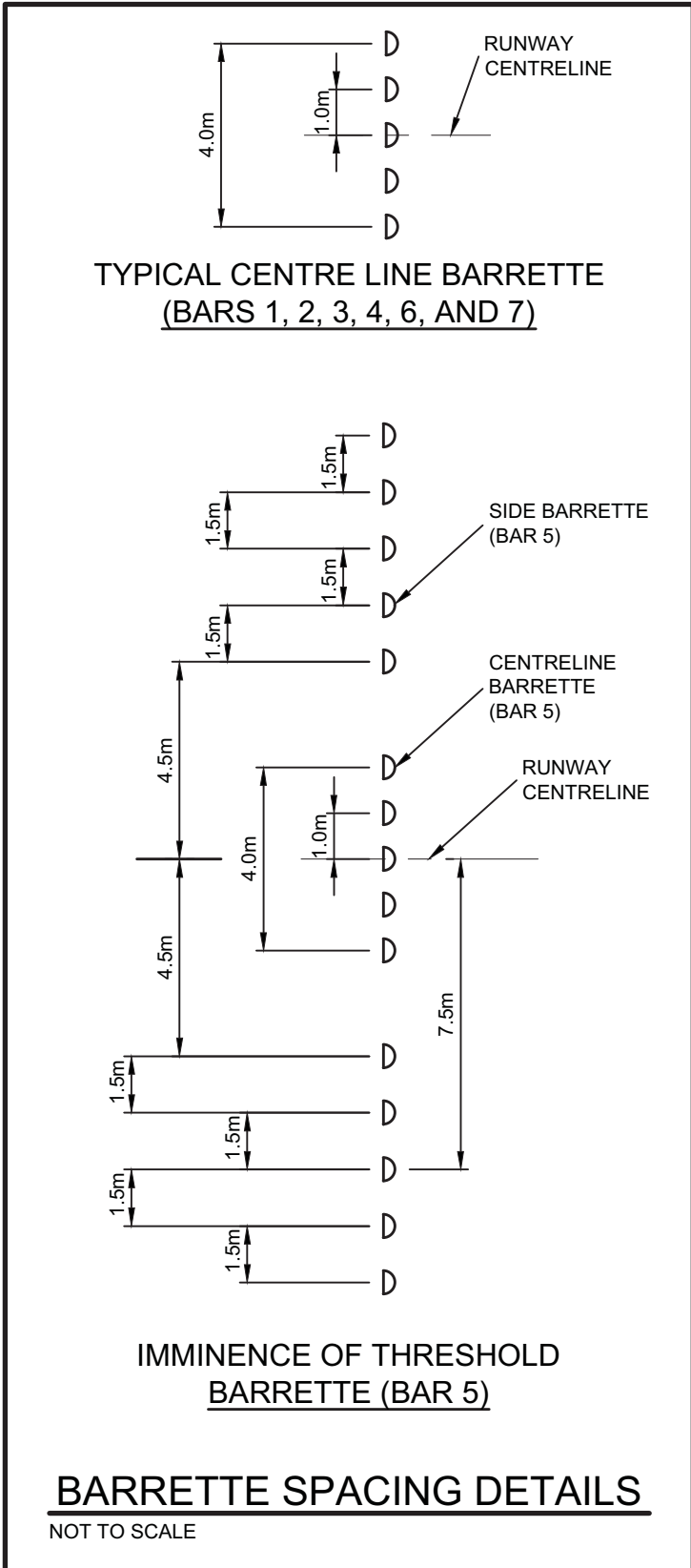


Client: GOVERNMENT OF NUNAVUT

Project: IQALUIT INTERNATIONAL AIRPORT
RUNWAY 34 APPROACH LIGHTING
REPLACEMENT

Title: RUNWAY 34 SSALR
PLAN AND PROFILE
STA. 8+175 TO STA. 8+440

WSP Project No.	151-07326-00	Contract No.	TBD
Design:	L2	Checked:	RB
Drawn:	L2	DRAWING No.	E003



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Scale - AS NOTED

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Client: GOVERNMENT OF NUNAVUT

Project: IQUALUIT INTERNATIONAL AIRPORT RUNWAY 34 APPROACH LIGHTING REPLACEMENT

Title: ELECTRICAL DETAILS 1

WSP Project No. 151-07326-00 Contract No. TBD

Design: L2 Checked: RB

Drawn: L2 DRAWING No. E004



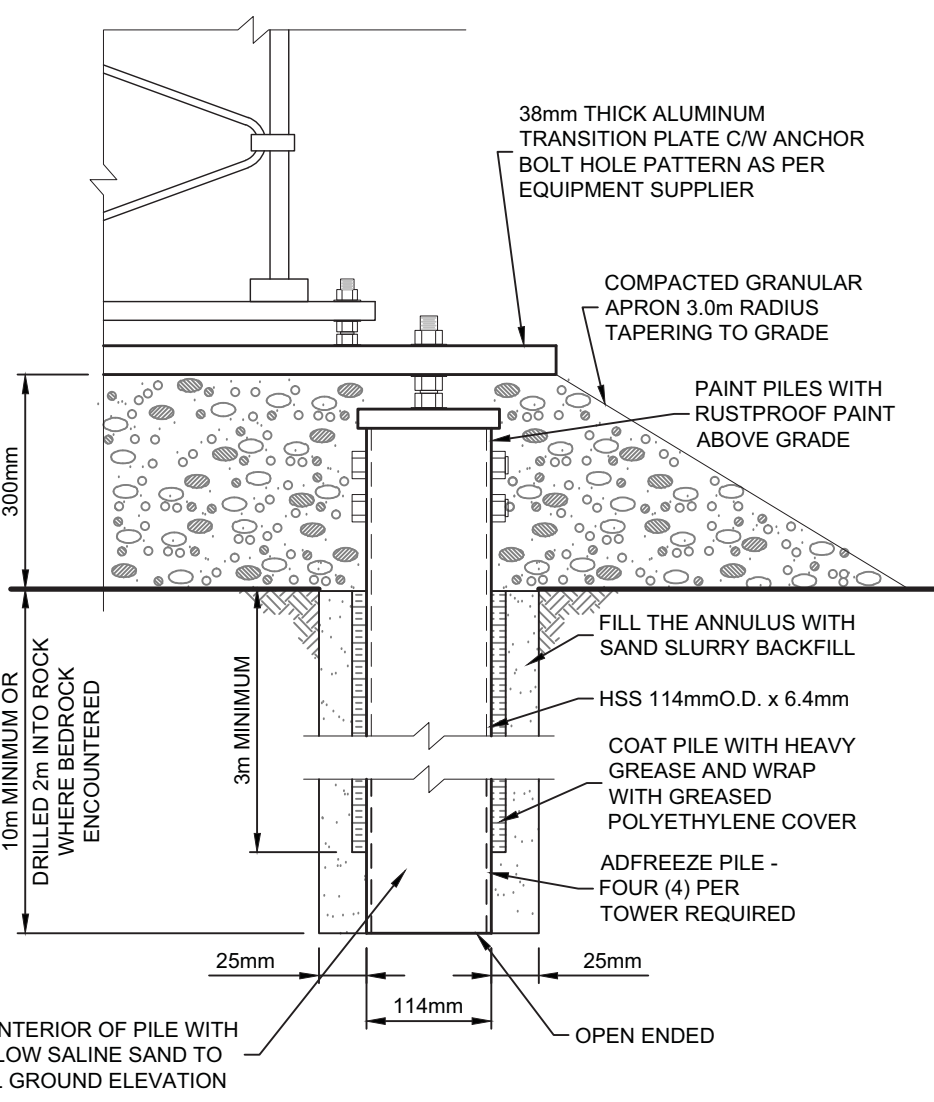
HINGED APPROACH LIGHTING TOWER
ANTI-CLIMBING SHIELDS
REQUIRED ON ALL TOWERS
(OMITTED FOR CLARITY)

TOWER BASEPLATE
C/W STAINLESS
STEEL HARDWARE
BY TOWER
MANUFACTURER.
APPROX. 28"SQ. x 1"
THICK

TOWER
TRANSITION PLATE
BY TOWER
MANUFACTURER.
APPROX. 34"SQ. x 1
1/2" THICK

PILECAPS, GALVANIZED
THREADED ROD, AND
GALVANIZED OR
STAINLESS STEEL
HARDWARE BY TOWER
MANUFACTURER

PILES BY PILING
CONTRACTOR



NOTES:

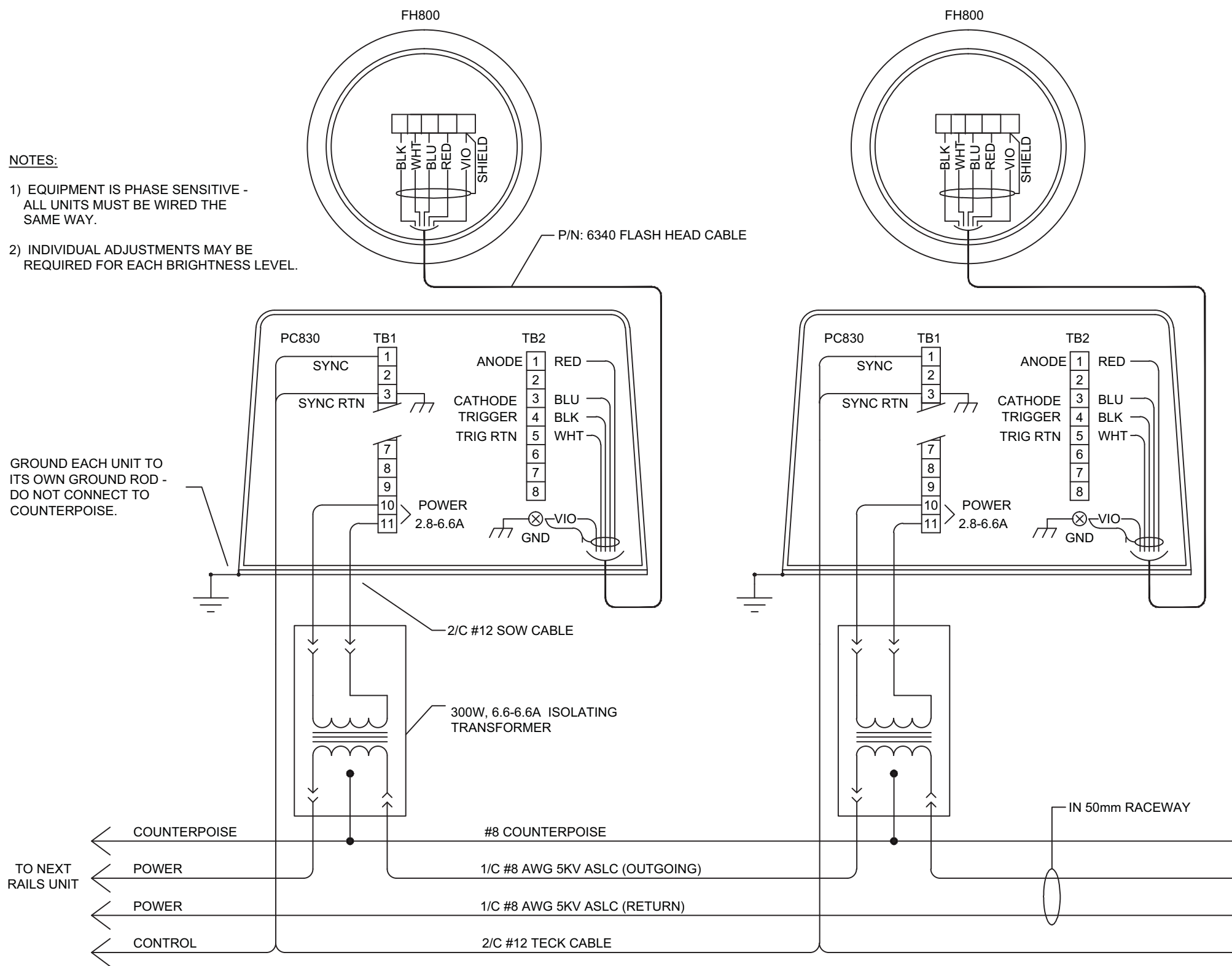
- COORDINATE ALL BOLT HOLES WITH TOWER MANUFACTURER.
- DESIGN AND CONSTRUCTION OF THIS PROJECT SHALL COMPLY WITH THE NATIONAL BUILDING CODE, LATEST EDITION AND THE NUNAVUT BUILDING CODE, LATEST EDITION.
- ALL DIMENSIONS MUST BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK. REPORT TO THE ENGINEER ANY DISCREPANCIES AND ALL DOUBTFUL CONDITIONS BEFORE PROCEEDING WITH THE WORK. DRAWINGS SHALL NOT BE SCALED.
- UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR THE STRESSES AND INSTABILITY OCCURRING FROM ANY CAUSE DURING CONSTRUCTION. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL SUCH MEASURES. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS TO SAFEGUARD ALL EXISTING OR ADJACENT STRUCTURES AFFECTED BY THIS WORK.
- DESIGN LIVE LOADS SHALL NOT BE EXCEEDED DURING CONSTRUCTION.
- THIS DRAWING SHALL BE COORDINATED AND READ IN CONJUNCTION WITH THE ELECTRICAL DRAWINGS.
- STRUCTURAL STEEL SHALL CONFORM TO CAN3 G40.21 M84 GRADE 350W.
- FABRICATION AND ERECTION SHALL CONFORM TO CSA CAN3-S16.1-M84. NO SPLICING WILL BE PERMITTED UNLESS OTHERWISE NOTED ON STRUCTURAL DRAWINGS.
- ALL FIELD BOLTS SHALL BE ASTM A325 HIGH STRENGTH BOLTS IN BEARING TYPE CONNECTIONS.
- ALL WELDS SHALL CONFORM TO CSA STANDARD W59-M84.
- SUBMIT SHOP DRAWINGS, INCLUDING CONNECTION DETAILS AND LOCATIONS OF ALL SPLICES FOR REVIEW BEFORE PROCEEDING WITH FABRICATION.
- ALL CONNECTIONS SHALL BE DESIGNED FOR HALF OF THE FULL SHEAR CAPACITY OF THE MEMBER UNLESS MEMBER CONNECTION LOADS ARE SHOWN ON THE DRAWINGS.

SSALR APPROACH LIGHT TOWER PILE FOUNDATION DETAIL

NOT TO SCALE

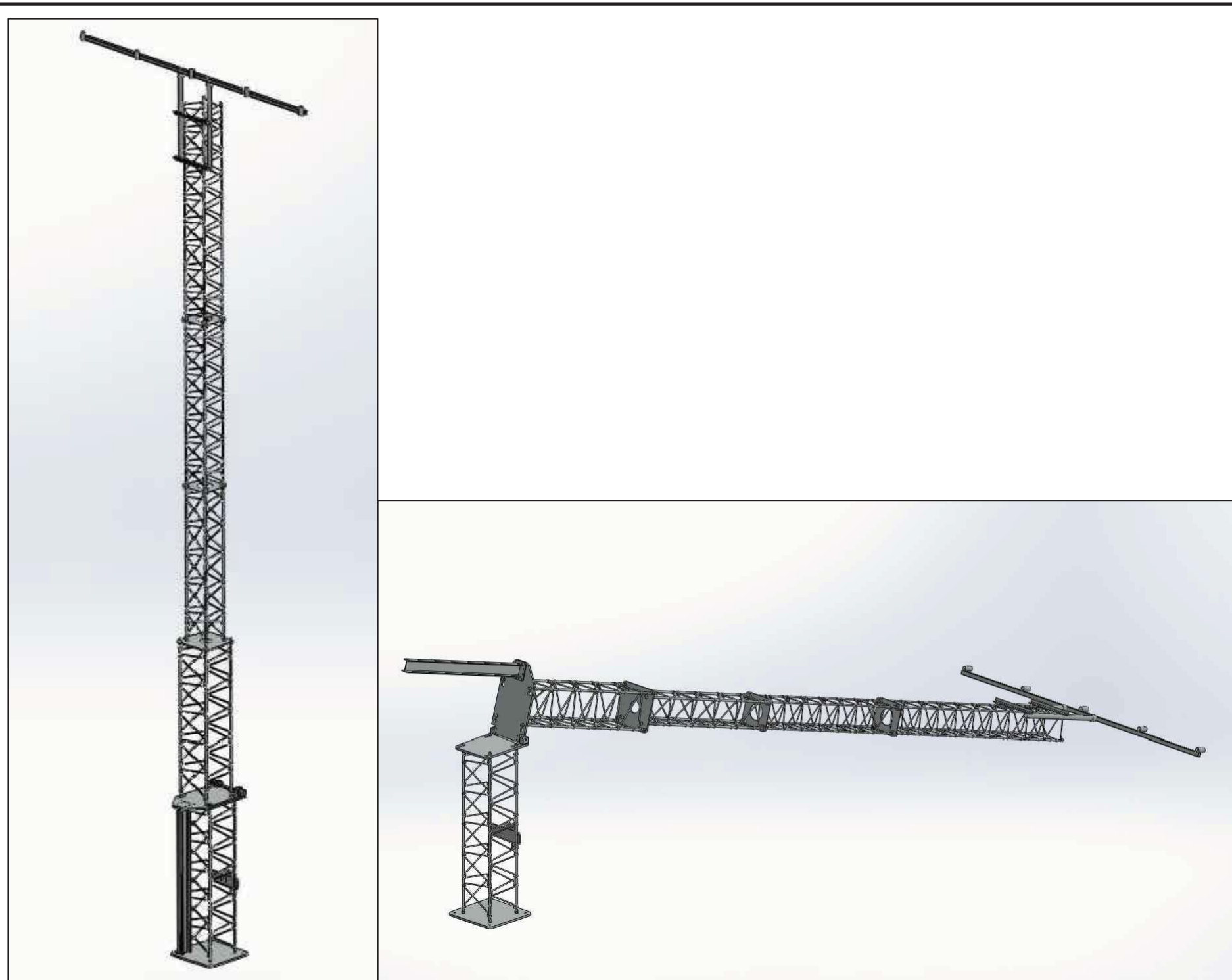
NOTES:

- EQUIPMENT IS PHASE SENSITIVE - ALL UNITS MUST BE WIRED THE SAME WAY.
- INDIVIDUAL ADJUSTMENTS MAY BE REQUIRED FOR EACH BRIGHTNESS LEVEL.



SSALR RAIL FLASH HEAD CONNECTION SCHEMATIC

NOT TO SCALE

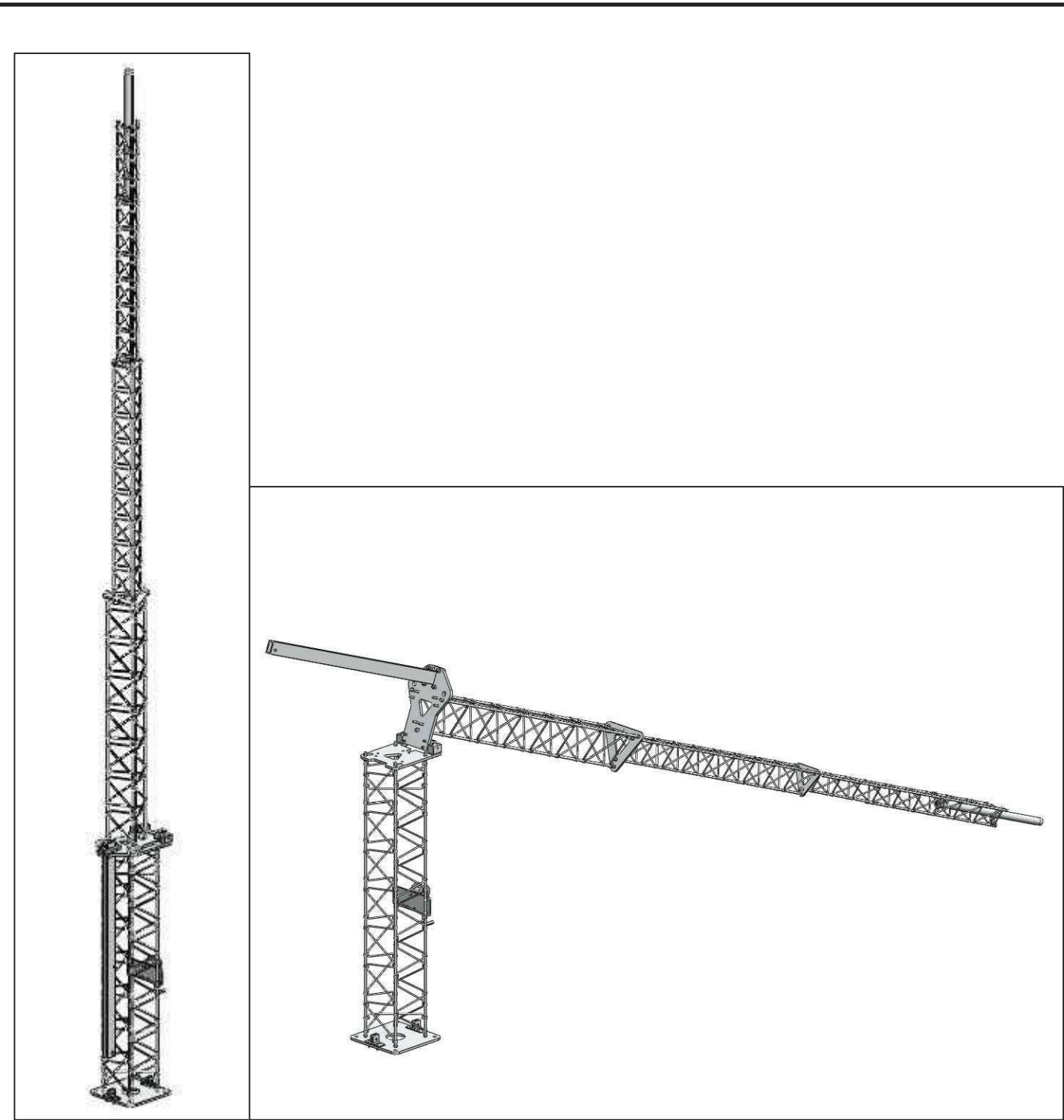


UPRIGHT

FOLDED

34 APPROACH LIGHTING - STEADY BURNING LIGHTS BARRETTE HINGED ALUMINUM LATTICE TOWER

NOT TO SCALE



UPRIGHT

FOLDED

34 APPROACH LIGHTING - FLASHER (RAIL) HINGED ALUMINUM LATTICE TOWER

NOT TO SCALE

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Scale - AS NOTED

Key Plan

Benchmark Information

No.	DATE	DESCRIPTION	BY	APPROVED
0	MAR 31/16	ACAP APPLICATION	RB	BD
REVISION / ISSUE				

Seals

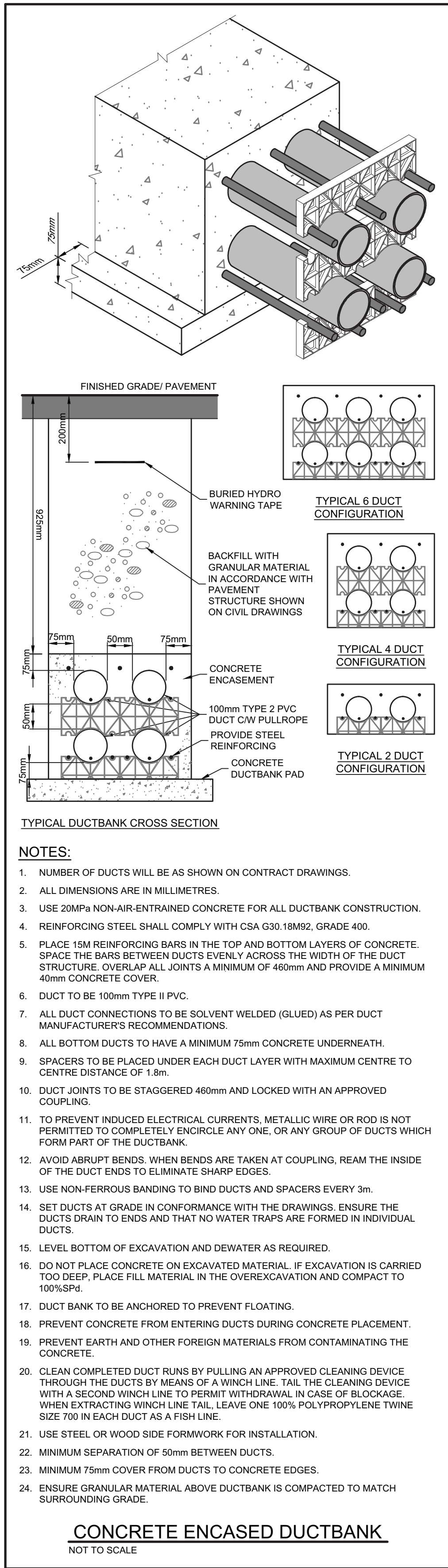
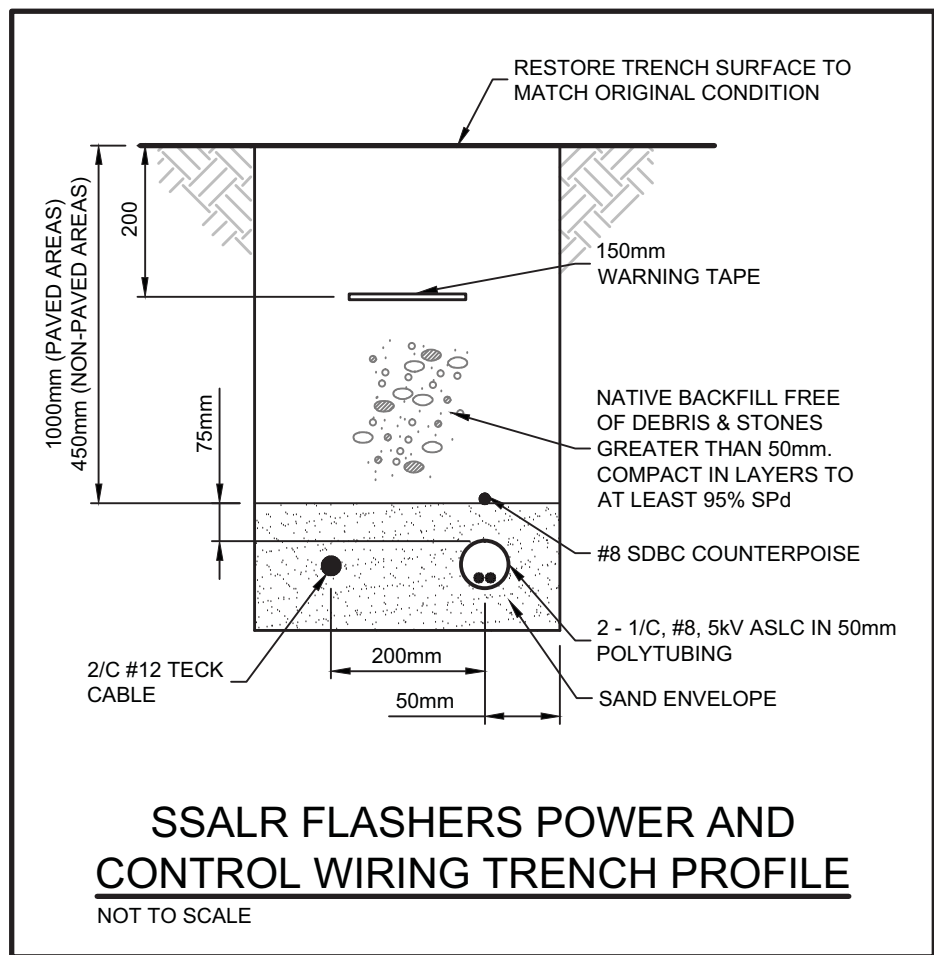
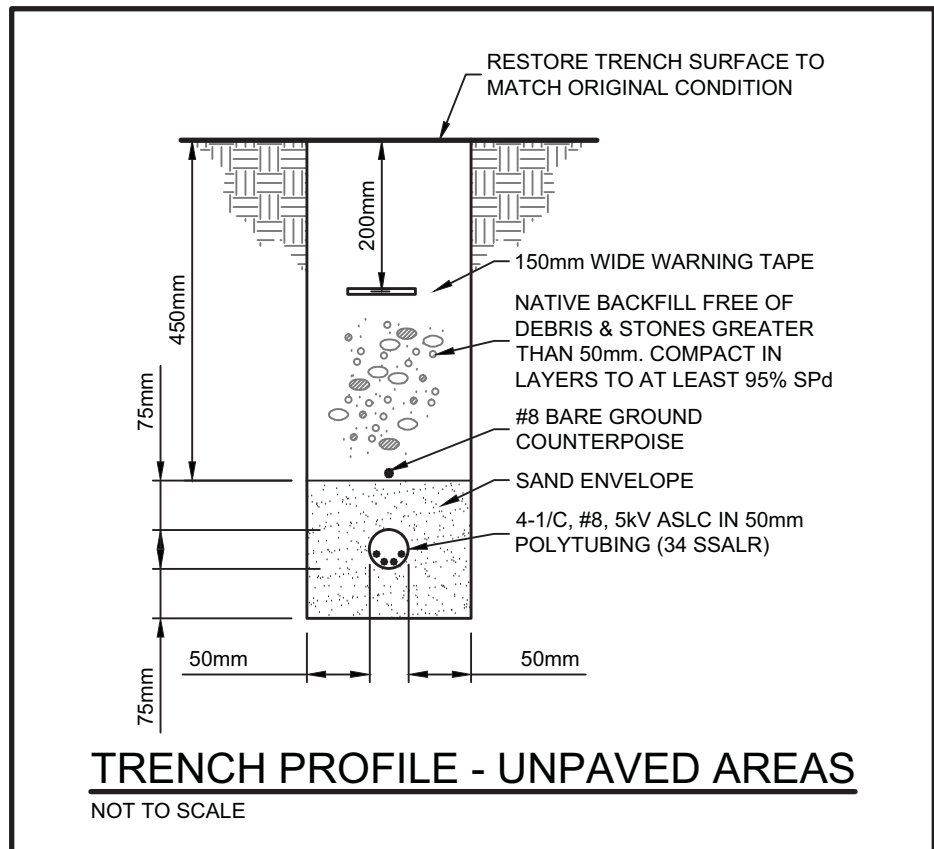
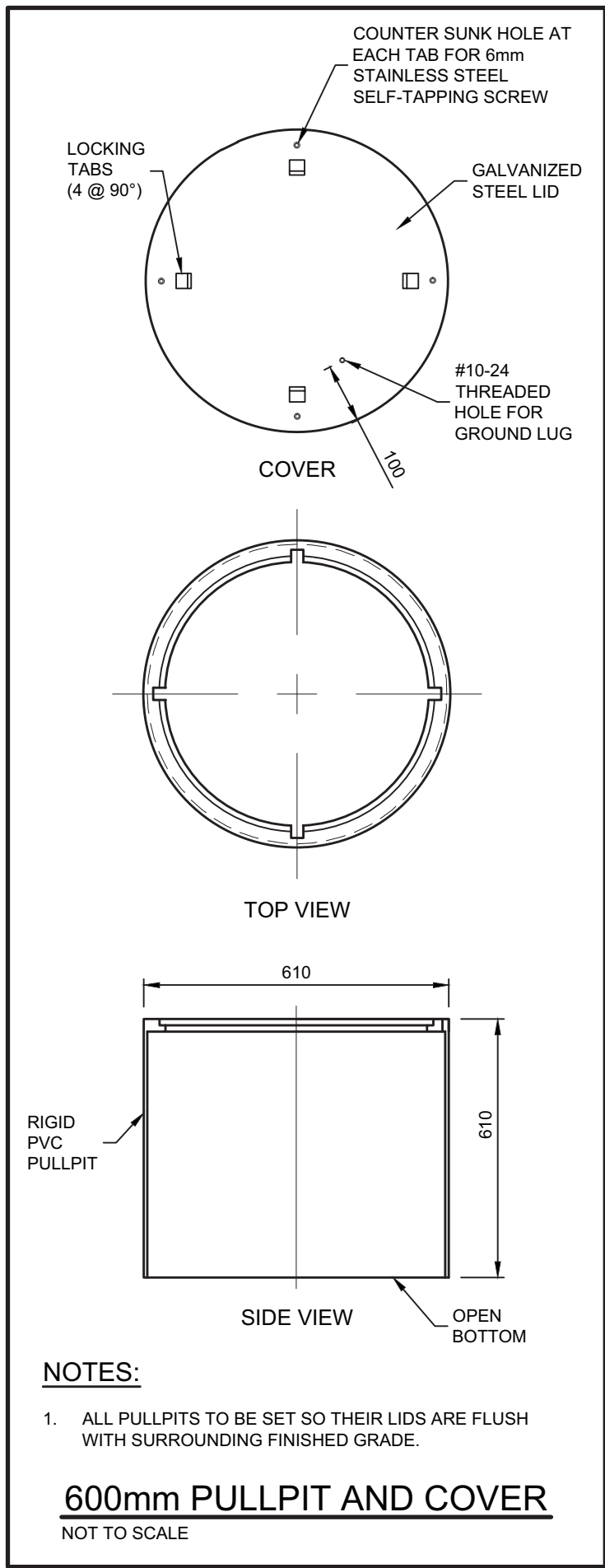
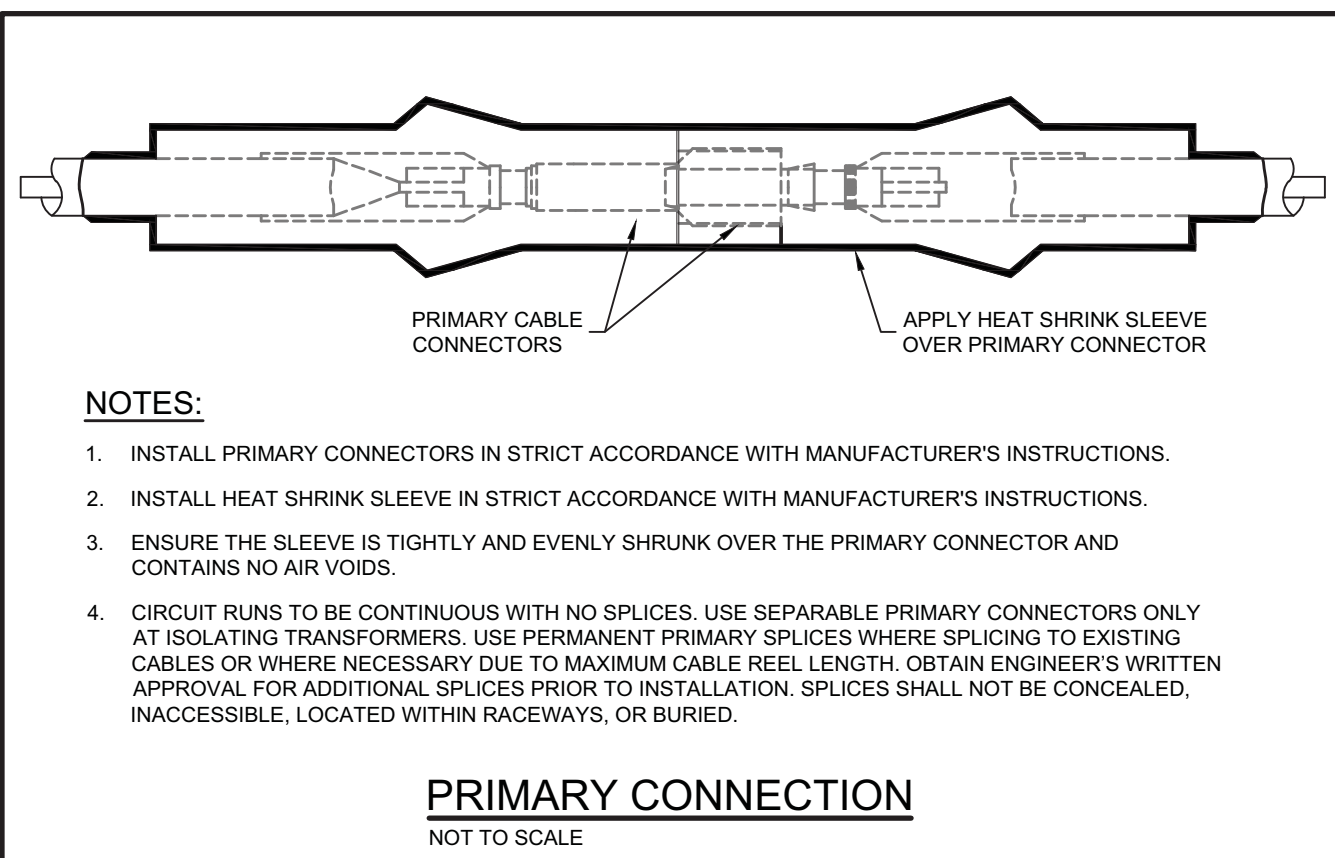
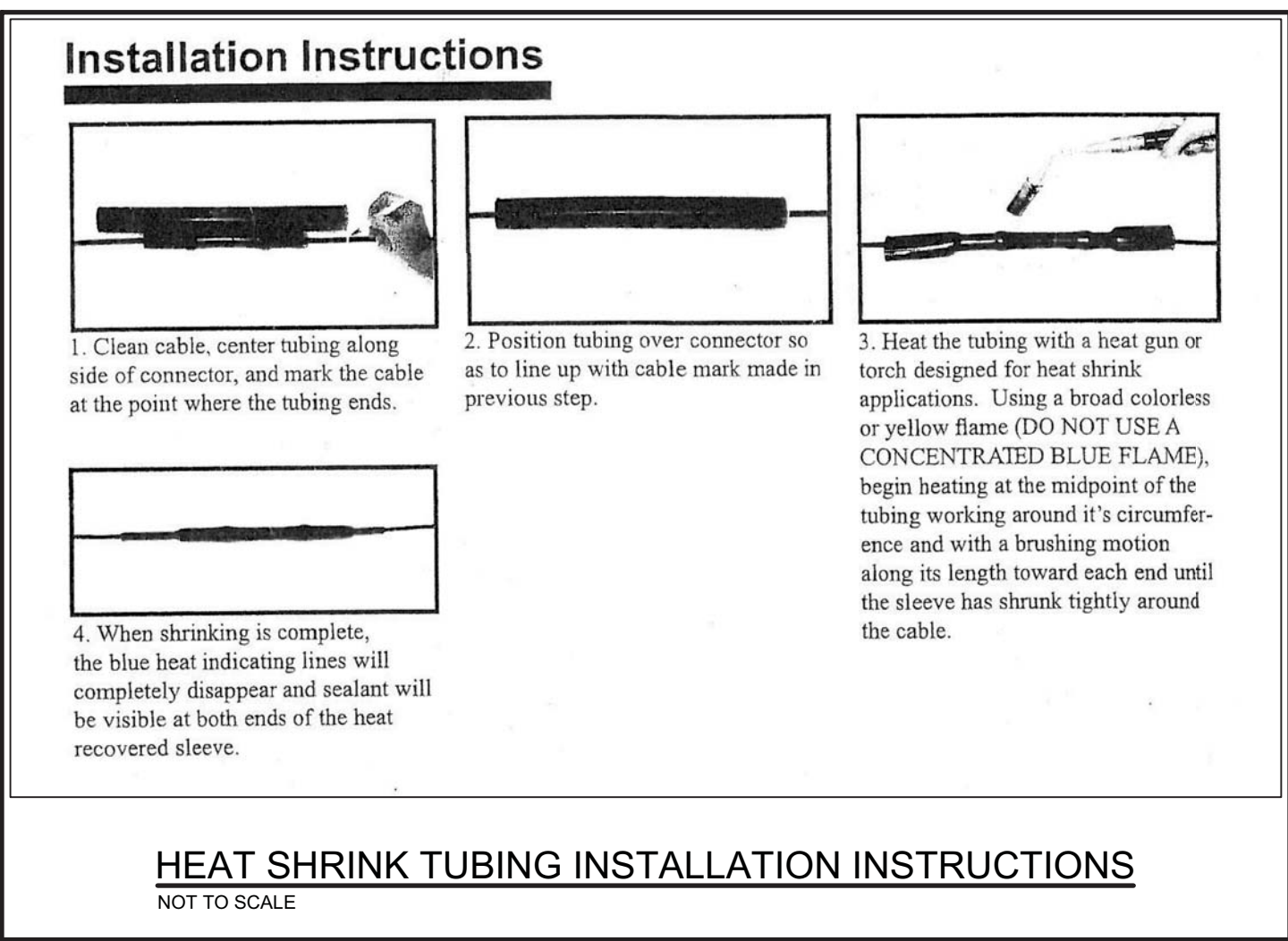
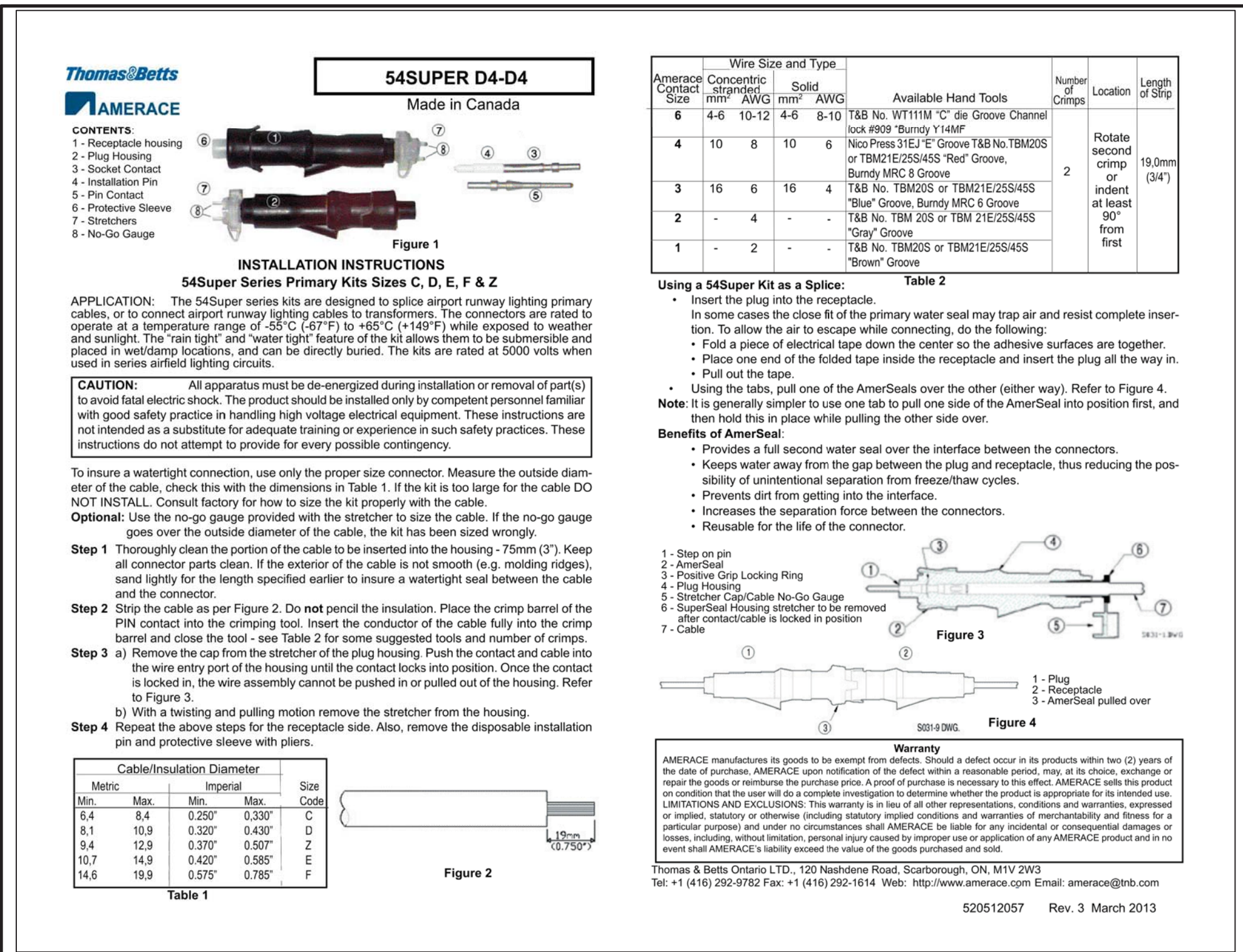
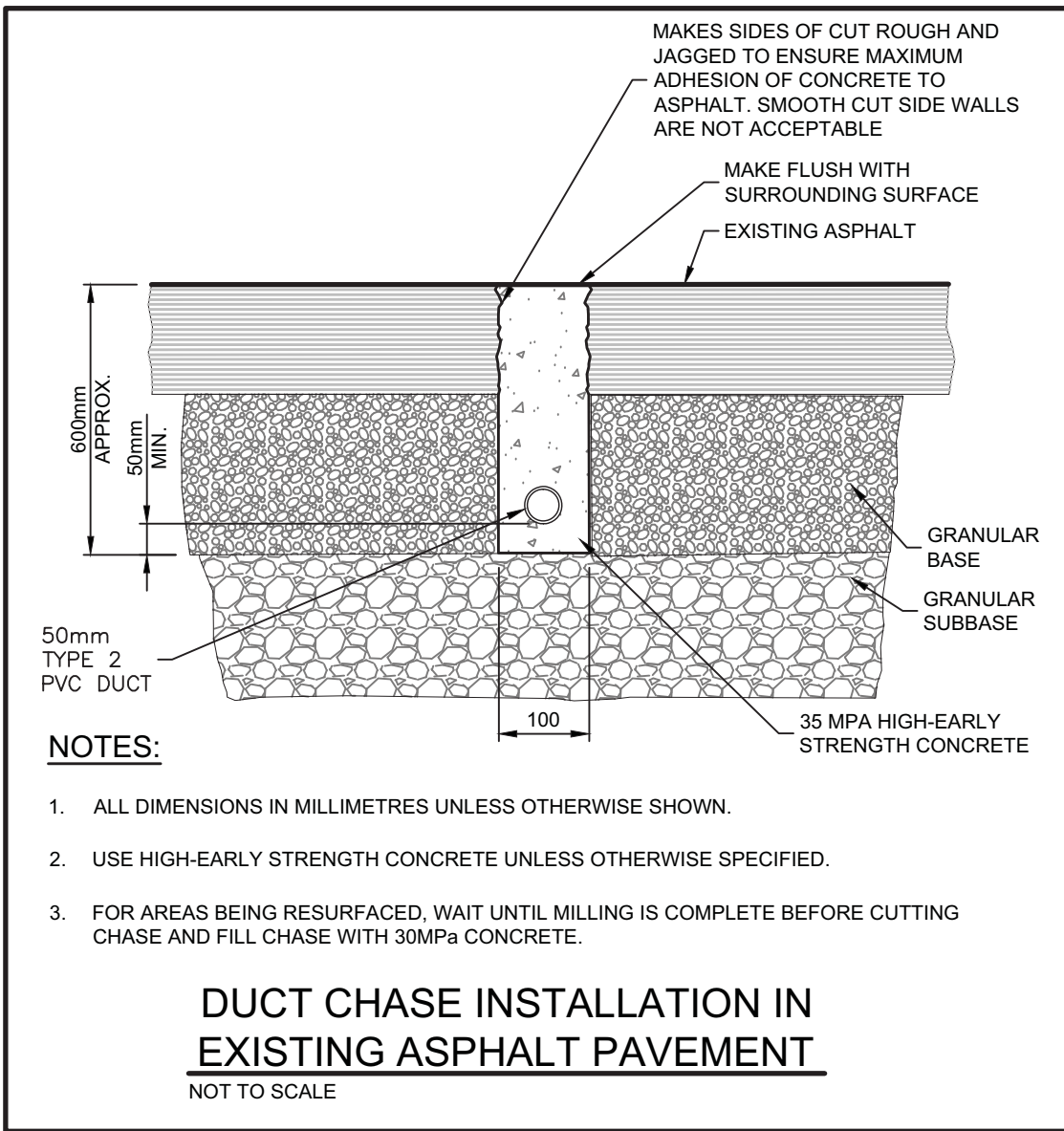
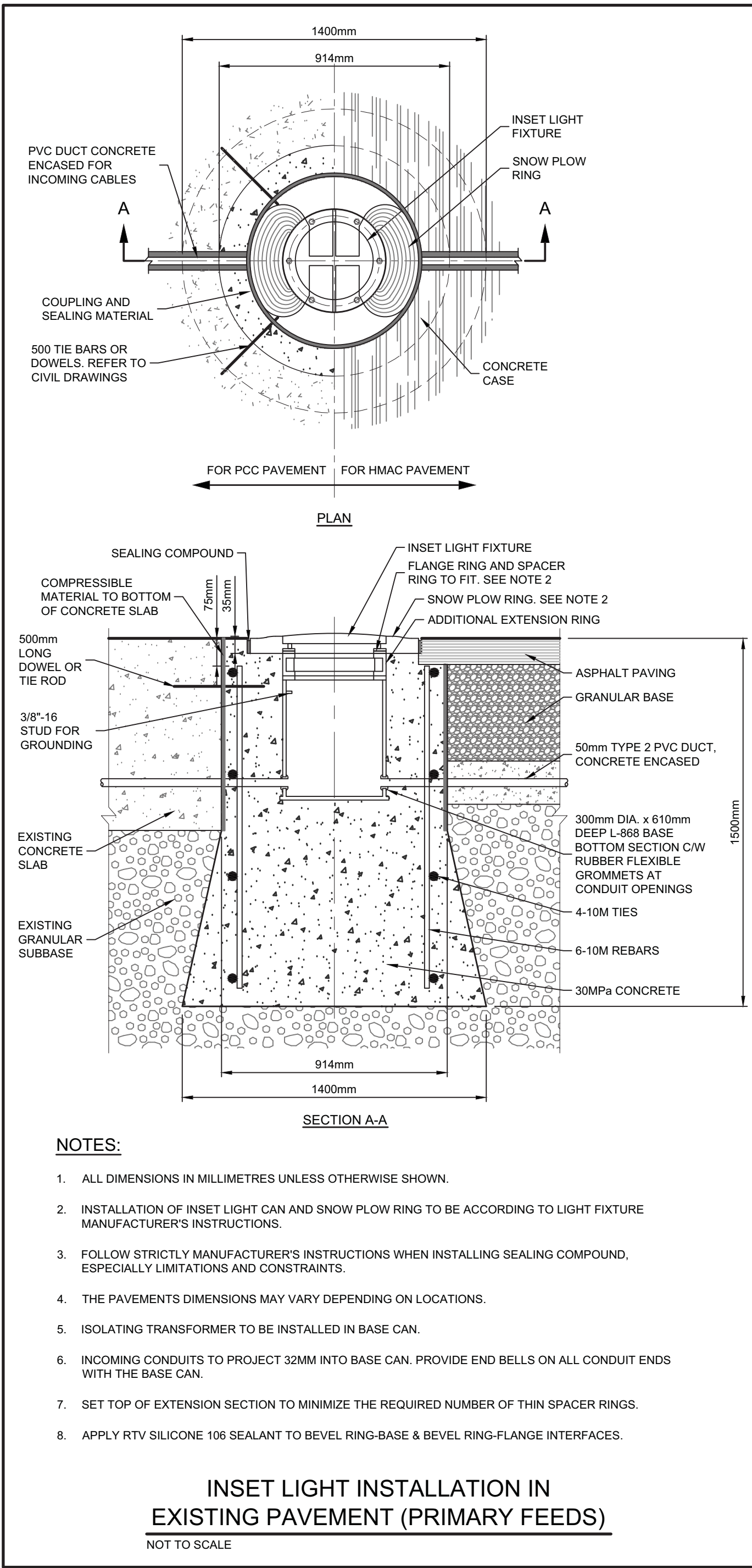


Client: GOVERNMENT OF NUNAVUT

Project: IQALUIT INTERNATIONAL AIRPORT
RUNWAY 34 APPROACH LIGHTING
REPLACEMENT

Title: ELECTRICAL DETAILS 2

WSP Project No.	151-07326-00	Contract No.	TBD
Design:	L2	Checked:	RB
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Key Plan

Benchmark Information

0	MAR 31/16	ACAP APPLICATION	RB	BD
No.	DATE	DESCRIPTION	BY	APPO
		REVISION / ISSUE		

Seals

WSP

Client: GOVERNMENT OF NUNAVUT

Project: IQUALUIT INTERNATIONAL AIRPORT RUNWAY 34 APPROACH LIGHTING REPLACEMENT

Title: ELECTRICAL DETAILS 3

WSP Project No. 151-07326-00 Contract No. TBD

Design: L2 Checked: RB

Drawn: L2 DRAWING No. E006

Appendix C

SITE PHOTOGRAPHIES



Photo C-1: Current Non-Standard Approach Lighting, towards Frobisher Bay

Source: Google Street View, consulted on October 13th, 2016



Photo C-2: Current Non-Standard Approach Lighting, towards Runway

Source: Iqaluit International Airport – Runway 34 Approach Lighting Replacement Airport Capital Assistance Program Funding Application (WSP, 2016)



Photo C-3: Current Non-Standard Approach Lighting, towards Frobisher Bay

Source: Iqaluit International Airport – Runway 34 Approach Lighting Replacement Airport Capital Assistance Program Funding Application (WSP, 2016)

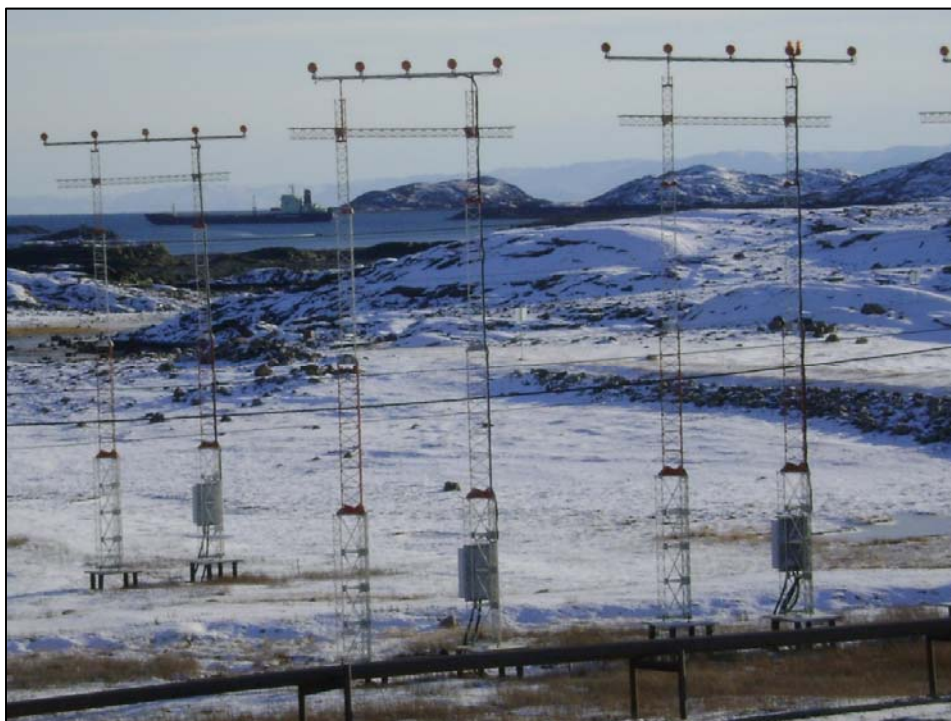


Photo C-4: Current Non-Standard Approach Lighting, towards Frobisher Bay

Source: Iqaluit International Airport – Runway 34 Approach Lighting Replacement Airport Capital Assistance Program Funding Application (WSP, 2016)

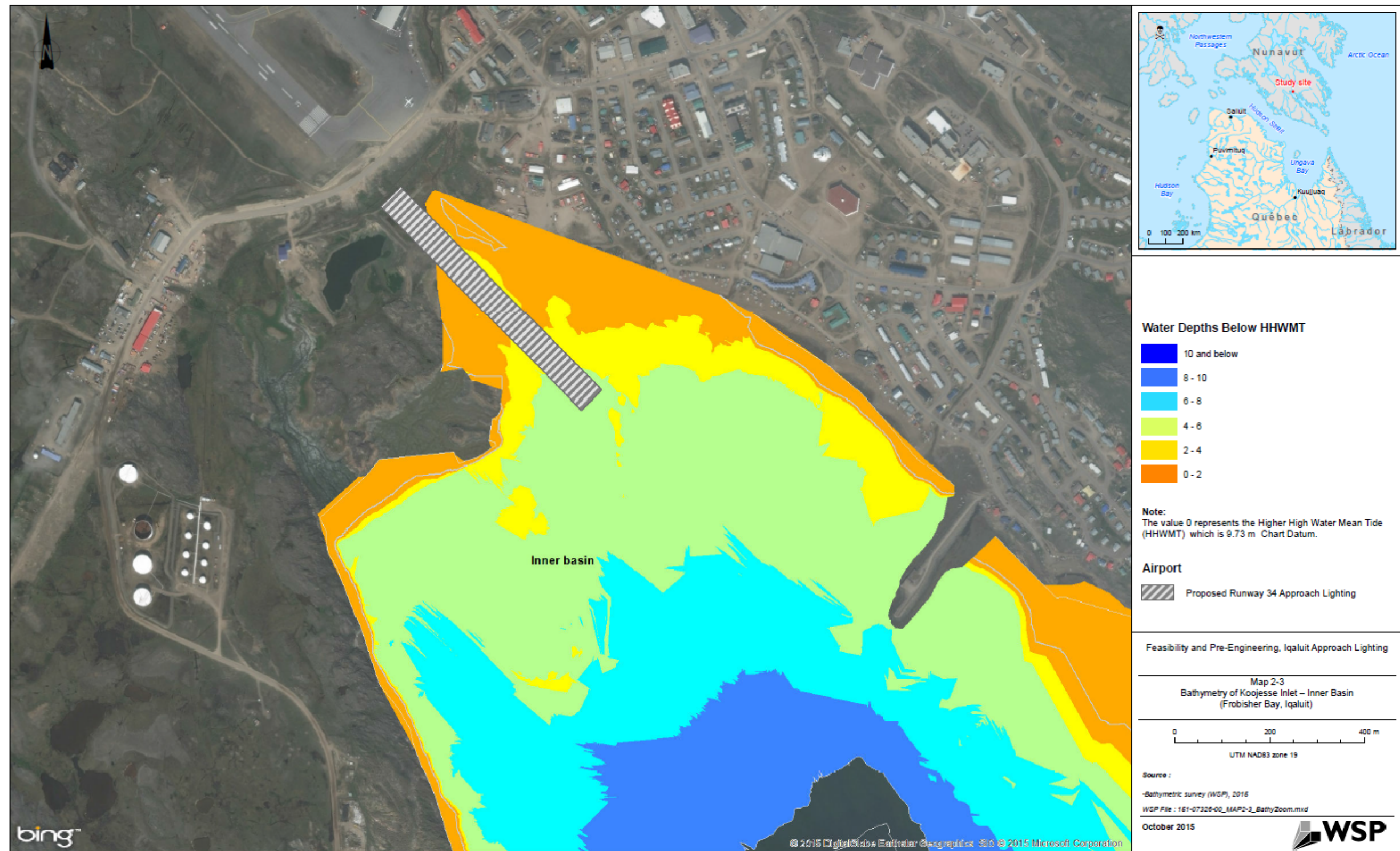


Photo C-5: Current Non-Standard Approach Lighting, towards Runway

Source: Field investigations done by WSP (WSP, 2015)

Appendix D

MAPS AND FIGURES



Map D-1: Bathymetry of Koojesse Inlet

Source: Coastal Environment Study (WSP, 2015)

Iqaluit Airport - Approach Lighting Replacement
Government of Nunavut

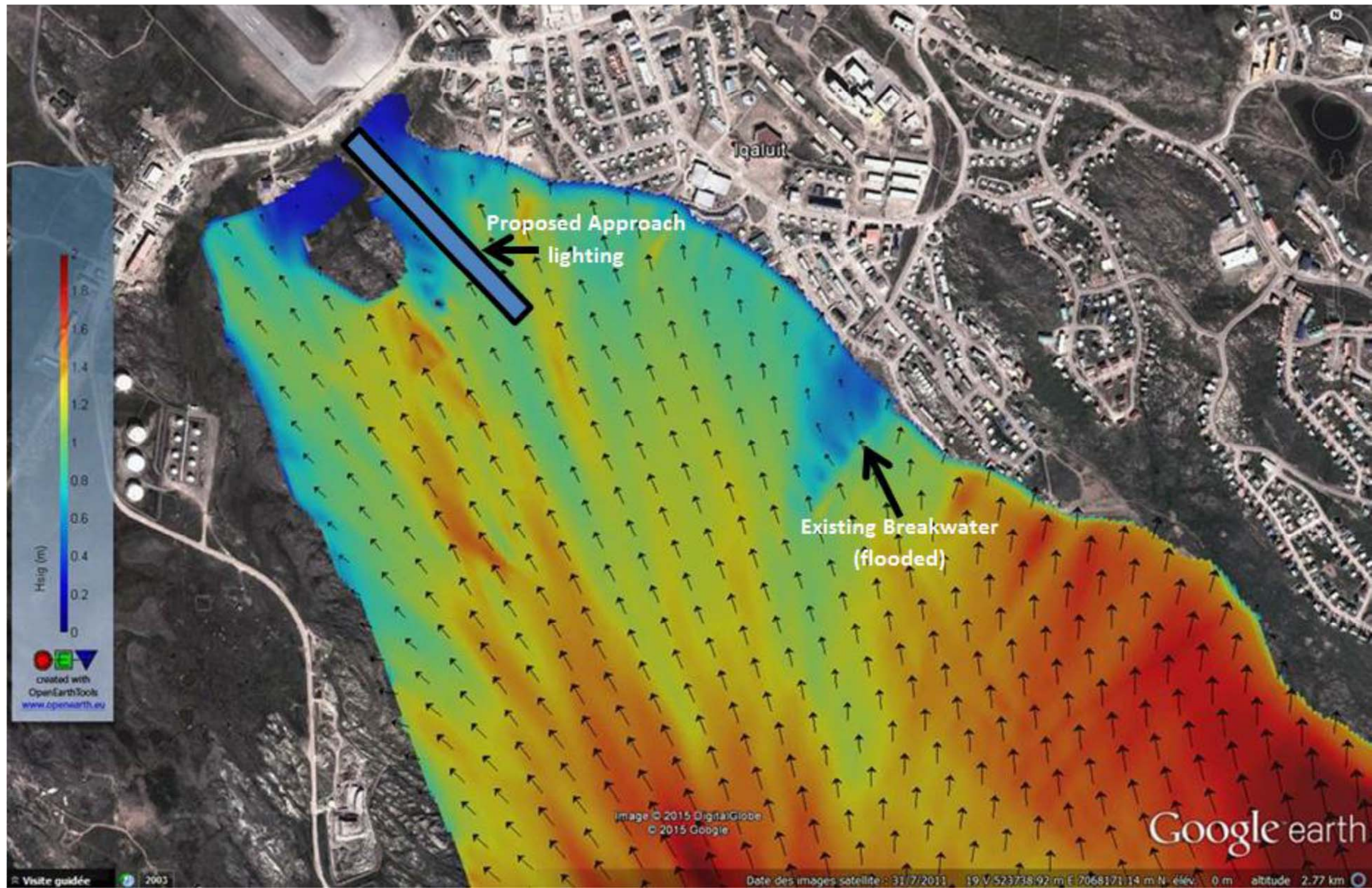


Figure D-1: Design Storm Condition

Source: Coastal Environment Study (WSP, 2015)

Appendix E

PERTINENT SECTIONS OF AIRPORT EMERGENCY RESPONSE PLAN

Emergency Plans

Iqaluit International Airport



Document History Changes

Revision Number	Date	Description	Author
0	7/18/2014	Original Document	D. Kohinski
1	December 8, 2014	Full amendment	K. Henderson
2	January 25, 2015	Amendments identified in communication, training	K.Henderson
3	September 10, 2015 and October 21, 2015	Inclusion of security plan requirements , special events requirements, exercise planning and evaluation checklists, reference to disabled aircraft plan and Environment Canada Fuel tank emergency plans	K.Henderson

Contents

1	Plan Management.....	6
2	Manual Distribution List.....	6
3	Acronyms and Definitions.....	9
4	Emergency Plan Overview	13
4.1	Airport Emergency Program	13
4.1.1	Plan Confirmation	13
5	Emergency Categories	16
6	Emergency Response Procedure (EP)	20
7	Incident Response Roles and Responsibilities	24
7.1	Communications Plan	30
7.1.1	Communication SOP	31
7.1.2	Airport Communication Equipment Testing	31
8	Follow up and Corrective Actions	32
9	Incident Command System	34
9.1	Jurisdiction	34
9.2	Training of NASL Staff	34
9.3	Testing of Emergency Plan.....	35
9.4	Organizations span of control.....	35
9.4.1	FSS (Flight Services Station)	37
9.4.2	Public Safety Officer.....	37
9.4.3	ARFF	37
9.4.4	Airport Security	37
9.4.5	Airport Operations Manager or Designate	38
9.4.6	Airlines	38
9.4.6.1	Aircraft accident ON or OFF airport	38
9.4.7	NEM (Nunavut Emergency Management).....	39
9.4.8	City of Iqaluit Fire Department	39
9.4.8.1	Meeting Points	39

9.4.9	RCMP (Royal Canadian Mounted Police)	40
9.4.10	CBSA (Canadian Border Services Agency)	41
9.4.11	Qikiqtani General Hospital Emergency	41
9.4.12	EOC (Emergency Operations Center)	41
9.4.13	Coroner	42
9.4.14	Clergy	42
9.4.15	Flight Service Station.....	42
10	Emergency Plans	47
10.1	Section 1: Types of Emergencies and Response	47
10.1.1	Flight Service Station (FSS) Call out Protocols	48
10.2	Airport Rescue Fire Fighting	55
10.2.1	Alert 3 – Crash on Airport Duties	56
10.2.2	Alert 3 – Crash On Airport - Checklist	57
10.2.3	Alert 3 – Crash Off Airport - Duties	58
10.2.4	Alert 3 - Crash Off Airport - Checklist.....	59
10.2.5	Alert 2- Aircraft Emergency – Duties	60
10.2.6	Alert 2 – Aircraft Emergency – Checklist.....	61
10.2.7	Alert 1 – Aircraft with Minor Problem – Duties	62
10.2.8	Alert 1 – Aircraft with Minor Problem – Checklist	63
10.2.9	Emergency Situation – Duties	64
10.2.10	Emergency Situation – Checklist	65
10.3	On Scene Controller/Incident Commander – Checklist	66
10.3.1	Alert 3 – Crash On Airport.....	66
10.3.2	Alert 3 – Crash Off Airport	67
10.3.3	Alert 2 – Aircraft Emergency	68
10.3.4	Alert 1 – Aircraft with Minor Problems.....	69
10.4	Emergency Operations Centre Manager (Associate Services Director or designate)	71
10.4.1	Alert 3 – Crash On Airport – Duties.....	71
10.4.2	Alert 3 – Crash On Airport – Checklist.....	72
10.4.3	Alert 3 – Crash Off Airport – Duties	73
10.4.4	Alert 2 – Aircraft Emergency – Duties.....	75
10.4.5	Alert 2 – Airport Emergency – Checklist	76

10.4.6	Alert 1 – Aircraft with Minor Problem – Duties	77
10.4.7	Alert 1 – Aircraft with Minor Problem – Checklist	78
10.4.8	Emergency Situation – Duties	79
10.4.9	Emergency Situation – Checklist	80
10.5	Security Contractor	81
10.5.1	Alert 3 – Crash On Airport – Duties.....	81
10.5.2	Alert 3 – Crash Off Airport – Duties	82
10.5.3	Alert 2 – Aircraft Emergency – Duties.....	83
10.5.4	Alert 1 – Minor Problem on Aircraft – Duties	84
10.5.5	Emergency Situation – Duties	85
10.6	City Of Iqaluit Fire Department.....	86
10.6.1	Alert 3 – Crash On Airport.....	86
10.6.2	Alert 3 – Crash Off Airport	87
10.7	Iqaluit Ambulance Service.....	88
10.7.1	Alert 3 – Crash On Airport.....	88
10.7.2	Alert 3 – Crash Off Airport	89
11	Security Incidents.....	90
11.1	Command and Coordination.....	90
11.1.1	Definition.....	90
11.1.2	Overall Authority.....	90
11.1.3	Threat Assessment.....	90
11.1.4	Subsequent Action Plan	90
11.2	Bomb Threat/Scare	91
11.2.1	Bomb Threat - Aircraft	91
11.2.2	Bomb Threat – Facilities.....	91
11.2.3	Bomb Scare	92
11.3	Hijacking.....	97
12	Business Contingency and Service Resumption Plans	104
12.1	Business Contingency.....	104
12.2	Service Resumption.....	105
12.3	NASL Rendering Emergency Assistance	105
12.4	Responding to Fire or Other Emergency.....	105

12.5	Clearing Blocked Access Routes	105
12.6	Limiting Unauthorized Access	106
12.7	Evacuation of the Affected Area	106
12.8	Liaising with External Agencies	106
12.9	NASL Role in a Declared Emergency	106
12.10	NASL Role / Natural Disaster	106
12.11	Fire Alarm System Certification	107
13	Fire Evacuation Plans and Procedures	108
13.1	Fire Drills	108
13.2	Building Evacuation	108
13.2.1	Building Evacuation Team Members	108
13.2.1.1	Chief Warden	109
13.2.1.2	Assistant Chief Warden	109
13.2.1.3	Area Wardens	110
13.2.1.4	Managers and Supervisors	110
13.2.1.5	Workers, Users, Contractors and Visitors	110
13.2.2	Building Evacuation Assembly	110
13.2.3	Evacuation Requirement	111
13.2.4	Animal Handling	111
13.2.5	Evacuation Procedures	111
13.2.6	Evacuation Diagrams	112
14	SPECIAL EVENT REQUIREMENTS	115
14.1	General	115
14.2	Exceptions	115
14.3	Submission of requests for special events	115
14.4	Event Safety	115
14.5	Security	115
14.6	Communications	116
14.7	Set-up and cleanup	116
14.8	Utilities	116
14.9	Insurance	116
14.10	Responsibility for permits, waivers, airspace, and Notices to Airmen (NOTAMS)	116

14.10.1	Permits and Waivers;	116
14.10.2	Airspace and NOTAMS	117
14.11	Event plan	117
14.12	Operating agreements	117
14.13	Hold harmless agreement	117
14.14	Signs	117
14.15	Support from the Airport	118
Appendix A		119
Exercise Planning Checklist and Exercise Evaluation Forms		119
Disabled Aircraft Plan		120
Included for reference only		120
Environment Canada Fuel Storage Tank Emergency Plan		121
Included for reference only		121

1 Plan Management

The procedures outlined in this manual cover the basic requirements and actions; they are developed to facilitate and integrate the response from various agencies which are necessary for an effective response to a situation. Since no two incidents are identical, the emergency call procedures and agencies roles contained in this manual are not intended to limit the deployment of additional resources and actions that may be necessary to protect lives, property, and the environment.

2 Manual Distribution List

This plan will be distributed to the distribution list below and receipt confirmed as follows:

The Airport Operations Manager or designate hand delivering updates locally and receiving sign off from manual holder; and,

Associate Services Director or designate sending electronic copies to non-local manual holders; with mailed hard copy to follow. Delivery receipt and/or signature will signify receipt of updates.

Controlled Manual Distribution

Copy number	Organization Person responsible	Date provided	Received by
Master	Associate Services Director		
1	EOC		
2	Airport Operations Manager		
3	Nav Canada FSS		
4	Airport Fire Station		
5	Nunavut Emergency Management		
6	City Fire and Ambulance		

7	Royal Canadian Mounted Police		
8	Twilite Security		

Information Manual Distribution

Copy number	Organization Person responsible	Date provided	Received by
9	First Air / Bradley		
10	Canadian North		
11	DND – JTFN		
12	Qikiqtani General Hospital		
13	First Air / Bradley		
14	Air Nunavut		
15	Kenn Borek Air		
16	Keewatin Air		
17	Frobisher Bay Touchdown		

Record of Amendments

The Emergency Plans are reviewed a minimum of once per year as outlined on the SMS Task Calendar. They are also subject to review following an exercise or actual incident.

Amendment number	Date of issue	Manual amended by	Date of amendment
01	July 21, 2014	D. Kohinski	July 17, 2014
02	March 6, 2015	K. Henderson	
03	October 22, 2015	K. Henderson	September 10, 2015

3 Acronyms and Definitions

Bomb Threat: Non-specific or Hoax

A hoax (non-specific) threat—where an individual provides only general information readily available to the public, such as, a single statement to the effect that a device has been placed on an aircraft, in an airport facility or elsewhere on airport property.

Bomb Threat: Specific

A valid (specific) threat - wherein the caller provides more detailed information not generally available to the public and which may include statements describing the device, why it was placed, its exact location, the time of activation etc.

Curious Item

An unattended item that cannot readily be associated with its owner is identified as a curious item. Unattended items deemed curious require further inspection in order to determine if their status will be downgraded from curious to safe, or upgraded from curious to suspicious, based on the examination by the appropriate responding personnel. If upgraded to Suspicious, further examination will be undertaken and an AERP event initiated as warranted.

Designated Aircraft Isolation Areas

The designated part of an airport to which aircraft under bomb threat, hijacking, or hazardous cargo emergency conditions is directed;

Emergency Standby Areas

The designated Emergency Standby Areas for the air terminal building is the arrivals area or as directed; for airside occurrences the standby location is the Gate 5 Guardhouse.

Emergency Plan

A written Plan of Operations containing procedures for coordinating the response from airport and community based agencies having a role in emergencies occurring on or in the vicinity of the airport.

Emergency Operations Centre (NASL EOC)

Incident Management location for events that have expanded beyond the incident scene where the Incident Commander and stakeholder/responder representatives determine overall strategy, long term planning, and objectives to resolve the incident. Depending on the type and the scope of the incident, the Emergency Operations Centre (EOC) may be activated and appropriate representatives requested to attend. The primary EOC centre is located at the Air Terminal Bldg., and the backup EOC is located at the Airport Maintenance Garage.

Hijacking

The unlawful seizure of an aircraft either in the air or on the ground by one or more persons.

Incident Action Plan (IAP)

An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.

Incident Command or Single Command

Single Command exists when the decision-making process needed to direct the response is straightforward and independent. This typically is the case when an incident is the responsibility of a single jurisdiction, or organization.

Incident Commander

The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. The IC is responsible for initiating the Threat and Risk Assessment process; coordinating the development of the Incident Action Plan; developing strategies and tactics to implement the Incident Action Plan and conducting incident operations.

Incident System

A standardized system that defines the basic command structure, roles, responsibilities, and common terminology required for effective management of an emergency incident or situation. It allows for a flexible response within modules that are scalable to meet emergency management requirements.

This includes an on-scene team at the Incident Command Post (ICP) coordinating the tactical emergency response and a centralized direction at the scene of the incident under the coordination of an Incident Commander who will coordinate the on-scene response activity from the ICP jointly with the Emergency Response Commanders and the involved stakeholders.

In-flight

An aircraft is deemed to be in-flight from the time all external doors are closed following embarkation until the later of the following:

The time when any such door is opened for the purpose of disembarkation; or

Between the time when the aircraft makes a forced landing in circumstances where the owner or operator thereof or a person acting on behalf of them is not in control of the aircraft, and the time at

which control of the aircraft is restored to the owner or operator thereof or a person acting on behalf of either of them

IRROPS

Abbreviation for “Irregular Operation” – any event that may impact the normal day-to-day operations at the airport or that cause a degraded or lowered level of service or operation for any facility or segment of the airport.

Nav Canada

The agency that controls, navigates, and provides for the safe operation of air traffic within Canadian airspace

Iqaluit Tower controls air traffic within a 13 mile radius of the airport and up to 3000 feet.

The Area Control Centre controls air traffic for in the provinces of Manitoba, Saskatchewan and Northwestern Ontario; east to Thunder Bay and as far north as Churchill. Provides enroute control service outside the Control Tower service area

On Scene

At the exact emergency location.

On Site

On airport property.

Public Health Risk

An event posing a serious and direct threat to the health of human populations.

Spill

Any material, substance or product which by itself, or in conjunction with other materials presents a hazard to or adversely affects any living thing or has a potential to do so, or as otherwise defined within the Transportation of Dangerous Goods Act, the Hazardous Containments Act, or within other pertinent Acts or Legislation.

Tenant

Where “Tenant” is used, it refers to Air Carriers; persons providing services to an Air Carrier; persons providing a service related to the transportation of airport accepted cargo or mail by air; and any person carrying out any activity at an aerodrome.

Threat

A threat is defined as anything which may be threaten life and safety, property or systems; or that would contribute to the tampering, destruction or interruption of any service or process.

Threat and Risk Assessment Process

Threat and Risk Assessment is decision making process to collect and analyze critical information from all involved stakeholders on a specific incident including tactical, environmental, criminal, and other related factors. The process is flexible enough to apply to any type of emergency incident. The outcome or objective of a Threat and Risk Assessment is to provide recommendations that will maximize safety of persons; security of property; and protection of infrastructure; while minimizing disruption to operational integrity. The Threat and Risk Assessment group will evaluate the circumstances using a structured review of facts and events to determine the degree of threat it represents and to identify an "Incident Action Plan" to deal with it.

Unified Command

The Unified Incident Command structure brings together the "Incident Commanders" of all major organizations involved in the incident in order to coordinate an effective response while at the same time carrying out their own jurisdictional responsibilities. The UC links the organizations responding to the incident and provides a forum for these entities to make consensus decisions. Under the UC, the various jurisdictions and/or agencies and non-government responders may blend together throughout the operation to create an integrated response team. Within Unified Incident Command, agencies work together through the Unified Command group to establish a common set of objectives and strategies and a single Incident Action Plan.

4 Emergency Plan Overview

The Emergency Management Act defines emergency management as the prevention and mitigation of, preparedness for, response to and recovery from emergencies (Emergency Management Act (EMA) 2007, C.15, section 2). The Emergency Plan (EP) forms part of the overall Emergency Program and together with agency/stakeholders procedures complies with the Canadian Aviation Regulations (CAR), Canadian Aerodrome Security Measures (CASM) and Canadian Aviation Security Regulations (CASR).

Emergency Plan Review and Modifications

The Airport Operations Manager will conduct, at a minimum, an annual review of the Emergency Plan and supporting materials to ensure procedures, processes and information is accurate and current. The review will include representatives from NASL Operations, Flight Service Station, Airport Fire Station, Government of Nunavut, City Fire and Ambulance, RCMP, Nunavut Emergency Management, First Air, Canadian North, Twilite Security, DND, Frobisher Bay Touchdown Services.

Modifications to the Emergency Plan will be recorded in the Records of Amendments, located in the Emergency Plan identifying the Amendment number, Date of issue, Manual amended by, Date of amendment and Confirmation of all amendments completed by Date and Initials in Master Copy.

The amendments will be distributed to stakeholders, and agencies identified in the Manual Distribution List located in the Emergency Plan.

Amendment Procedures

The Airport Operations Manager is responsible for the development, issuance and control of amendments to this manual. Once approved, amendments will be properly inserted by a company representative identified in the Manual Distribution List. All manual holders will be responsible for the safe custody and maintenance of their copy of the manual.

Within thirty days of issue of an amendment, confirmation will be provided to Associate Services Director that the required amendment action has been accomplished by the return of the amendment control page, signed and dated by the individual amending the manual.

4.1 Airport Emergency Program

Nunavut Airport Services Ltd. (NASL) has established, documented and implemented an emergency program consistent with the requirements of selected best practices recommendations using the applicable mandatory regulations, CAR 302 on emergency planning, CAR 303 on aircraft rescue and firefighting and CASR's on security.

4.1.1 Plan Confirmation

This is to confirm that these Emergency Plans, including fire compartmentalization design, provision of escape routes and provision of fire-fighting equipment and systems are compliant with the requirements of the Project Agreement between the Government of Nunavut and Arctic Infrastructure Partners for the operation of the Iqaluit International Airport.

Program Objectives

The objectives of NASL's emergency program are to:

- Prevent injury and save lives.
- Protect property and the environment.
- Secure critical infrastructure and facilities.
- Resume airport operations quickly, efficiently and safely in the wake of an emergency.

Key elements

The following key elements are included in the program:

Program Management

The Public Safety Officer is appointed as the Program Coordinator. The Public Safety Officer is authorized to develop, implement and administer the program and keep it current. The Public Safety Officer is responsible for program management and compliance of the program to applicable laws and regulations. The Public Safety Officer is responsible for leading the timely, effective and system-wide implementation of the emergency management program throughout NASL.

The Associate Services Director is responsible for the financial management requirements of the program. The Associate Services Director oversees all development in emergency management projects and ensures accountability of relevant parties.

Planning

A Hazard Identification and Risk Assessment (HIRA) and a planning process is used when assessing the response plan.

Implementation

The following key elements are included or under development:

- Development of a prevention and mitigation strategy.
- Resource management objectives and resources and a current resource inventory.
- An Emergency Plan (this plan).
- An Incident Management System
- Communication and warning systems.
- Operational Procedures.
- An Emergency Operations Center.
- A competency based training curriculum.
- Business continuity strategies.
- Recovery strategies.

Evaluations and Corrective Actions

Exercises have been developed to test plans and procedures, evaluation strategies and procedures to take corrective action on any substantive deficiency identified during the evaluation.

Management Review

The program is reviewed on an annual basis by management.

Core Components

The Emergency Program is based on international best practices. It is designed to protect the Airport community by coordinating and integrating all activities necessary to build, sustain and improve the capability, or mitigate against, prepare for, respond to and recover from threats and actual incidents. It has the following core components:

Prevention/Mitigation

Review the critical infrastructure and environment within which the program is administered, with a view to implementing measures that will mitigate or prevent, the exposure to threats, irregular operations and emergencies/disasters and to develop/implement those measures.

Preparedness

Developing and maintaining an inventory of resources, plans and procedures that correspond to the environment as well as a related training and exercise program to keep responders and stakeholders in a state of readiness, relative to the threat level.

Response

Ensuring the availability of resources, plans, procedures and personnel, required to respond to irregular, emergency and disaster situations.

Recovery

Ensuring the availability of resources, plans, procedures and personnel required to affect a recovery to operational status and ultimately a restoration of the affected components of the impacted environment.

Emergency Plan Objectives

The Emergency Plan (EP) provides an overall framework for managing emergencies affecting the Iqaluit Airport.

The key objectives of the EP are to:

- Establish a framework for a systematic, coordinated, effective emergency response by NASL and stakeholders to protect the health, safety and welfare of people and to limit damage to property and the environment.
- Provide an umbrella under which other response plans, procedures and protocols reside.

NASL develops and maintains relationships and networks with individuals and organizations to collaboratively encourage trust and facilitate ongoing communications.

5 Emergency Categories

Hazard Identification and Risk Assessment (HIRA)

NASL has identified and assessed various hazards and risks to public safety, which could cause emergencies. Facilities and other elements of the infrastructure that are at risk of being affected by emergencies have also been identified.

Hazard Identification and Risk Assessment is vital to a successful Emergency Program. The Airport considers the impact of an event and the probability of it occurring and incorporates this approach into all airport activities.

Specific Event Rationale

NASL has adapted an all-hazards approach. This approach includes arrangements for managing a broad range of possible effects from natural and human-induced hazards and disasters. The all-hazard risk approach recognizes that actions required to mitigate the effects of emergencies are essentially the same, irrespective of the nature of the event. This permits an optimization of response, support, and scarce planning resources. The intention of all-hazards generic emergency planning is to employ generic emergency methodologies, modified as necessary by particular circumstances. To effectively respond to such emergencies, NASL has identified three major categories (CAR 302.203, section 1A):

- Aircraft related
- Non-Aircraft related
- Medical emergencies

Aircraft Related Emergencies

Type of Incident	Definition	Airport Site Representative
Crash on Airport	A crash of an aircraft within airport boundaries	NASL Public Safety/ARFF Staff Shall assume command where aircraft fire-fighting operations are involved. They will relinquish command to the On-Scene controller (OSC) once the fire hazard has been brought under control and the site is deemed safe.
Crash off Airport	A crash of an aircraft outside of Iqaluit Airport's property within a critical rescue and Firefighting access area that extends 1000 meters beyond the ends of the runway and 150 meters at 90 degrees outwards from the centerline of the runway, including any of that area outside the airport boundaries.	In case of aircraft accidents or incidents outside the airport boundary command authority for firefighting rests with the first responding department until such time as the Senior Officer of the Fire Department authorized to have jurisdiction arrives.
Aircraft Malfunction in flight	A malfunction or failure of an aircraft system or component while in flight.	NASL Airport Operations Manager will assume the role of OSC. The OSC is the delegated authority at the scene and is trained to deal with airport emergencies.
Aircraft Incident on the Ground	An aircraft incident on the ground which is non-specific in nature such as a runway incursion (a veer off or overrun off the runway surface).	The initial Incident Commander is NASL Public Safety Officer/ARFF Staff or Airport Operations Manager is the On-Scene Controller
Aircraft Bomb Threat/Confirmed ED	A spoken or written bomb threat to or from any arriving or departing aircraft or a confirmed explosive device (ED) in any arriving or departing aircraft.	The initial Incident Commander for a bomb threat is NASL Public Safety Officer/ARFF Staff. The initial Incident Commander for a confirmed Explosive Device (ED) is RCMP
Hijacking	An unlawful seizure of an aircraft in the air or on the ground by an individual or a group.	The incident Commander is RCMP.
Acts of unlawful interference	Acts or attempted acts which may jeopardize the safety of civil aviation	The Incident Commander is the RCMP.

Aircraft Related Emergencies

Type of Incident	Definition	Airport Site Representative
Major Emergency	Any other emergency or multiple emergencies that are a major threat or are likely to be a threat to the safety of persons or to the operation of the airport, (e.g., an aircraft crashed into the terminal).	The initial Incident Commander is NASL Public Safety Officer/ARFF Staff
Structural Fire	All fires occurring in a building or in a building other than the Field Electrical Facility (T116) on airport property	NASL Public Safety Officer/ARFF Staff will be the incident commander until the Iqaluit Fire Services arrives on site and assumes command on all fires.
Structural Bomb Threat/Confirmed ED	A spoken or written bomb threat to or confirmed ED in any building or other facility located within airport boundaries and within the critical rescue and firefighting access area.	The initial Incident Commander for a bomb threat is NASL Public Safety Officer/ARFF Staff. Incident Command is transferred to RCMP.
Structural Malfunction with access airside	A Structural failure or malfunction of any building or other facility (e.g., collapse) located within airport boundaries that have access airside and within a critical rescue and firefighting access area	The initial Incident Commander is NASL Public Safety Officer/ARFF staff and the Airport Operations Manager is the On-Scene Controller
Structural Malfunction with no access airside	A Structural failure or malfunction of any building or other facility (e.g., collapse) located within airport boundaries with no access airside	The Incident Commander is Iqaluit Fire Services the Airport Operations Manager is the On-Scene Controller, NASL Emergency Response Services will provide assistance when able.
Fuel Spill	A fuel spill that spreads at least 1.5 meters in any direction or exceeds 12 millimeters in depth.	The initial Incident Commander is NASL Public Safety Officer/ARFF Staff and the Incident Commander. The Airport Operations Manager is the On-Scene Controller.
Hazardous Material Spill	Any release or spill, intentionally or unintentionally, of a hazardous material of any class, which can cause a threat to	The initial Incident Commander is NASL Emergency Response Services The Airport Operations Manager is the On-Scene Controller.

	safety, property or the environment.	
Natural Disaster	Any event caused by the forces of nature rather. Natural disasters include severe weather, earthquakes, floods and tornadoes.	The initial Incident Commander is NASL Associate Services Director.
Security Incident	Any incident related to security measures of the airport (e.g. presence of an unauthorized person or item within restricted areas or sterile security area.	The initial Incident Commander is the NASL Airport Operations Manager.

Aircraft Related Emergencies

Type of Incident	Definition	Airport Site Representative
Medical Emergency	Any incidents involving one person needing medical treatment	NASL Public Safety Officer/ARFF staff will be the lead agency if the medical emergency does not meet the communicable disease criteria.
Medical Emergency meeting Quarantine screening requirements	Any incident that meets the criteria for a possible communicable disease	Initial Incident Commander is NASL Public Safety Officer/ARFF Staff; shared with CBSA if international. Upon landing, command transferred to the GN Dept of Health if communicable disease criteria are met.

6 Emergency Response Procedure (EP)

Reporting Emergency Incidents

Incidents and emergencies are reported to the Helpdesk by calling the Airport Emergency Number (867) 877-6510, or through the use of radio systems. The Airport Emergency number contact number is provided to all employees and companies through the Pass Control Office and various other meetings involving the tenants on the airport.

Escalation Process

The Airport has four operational management levels based on the operational impact of an event. The levels are not necessarily escalated in order from one level to another. They are assigned based on available information as each individual event dictates. In all cases, the declaration to escalate is the decision of the Airport Operations Manager, or designate. The response required must be appropriate to the magnitude of the incident as defined in the Emergency Level classification.

Normal Operations – in which Standard Operating Procedures (SOP) apply. Normal Operations consist of the daily operations and service levels carried on at the airport in the absence of any irregular or emergency situation.

Irregular Operations (IRROPs) – consist of any event that may impact the normal day-to-day operations at the airport or that cause a degraded or lowered level of service or operation for any facility or segment of the airport. During this stage, standard operating procedures apply, but increased monitoring, vigilance, and standby notification may be implemented at the discretion of the NASL Airport Operations Manager and/or Associate Services Director.

The second stage of the IRROP situation is implemented when observation and monitoring indicates the event will require immediate action to minimize the disruption to airport functionality and operational integrity. Escalation from Normal Operations to an irregular Operation is based on information received regarding ongoing operations and the possibility of degraded or reduced service or operations due to the potential for disruption. It represents an incremental change from Normal Operations.

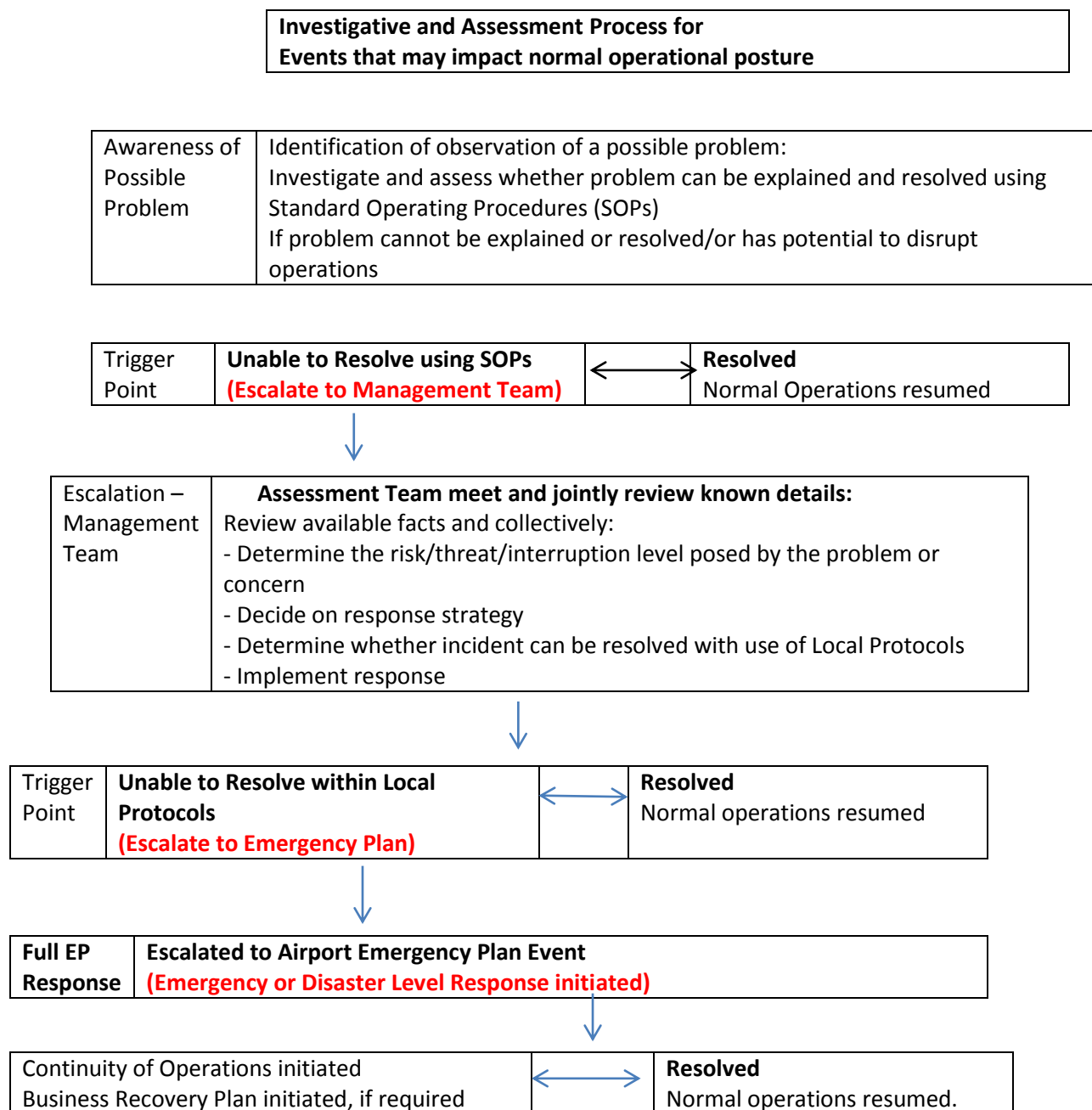
Emergency Operations – extremely hazardous and/or imminent conditions or a full-scale emergency as defined by the Airport's Emergency Procedures Manual. The situation requires immediate response by onsite resources and may require assistance from municipal emergency response partners. Depending on the type and scope of the incident, the Airport Operations Manager/Associate Services Director may choose to activate the Emergency Operations Center (EOC) and request appropriate representatives to attend. All necessary Emergency Response and other involved agencies are notified as appropriate to the type and scale of the incident.

Disaster Level – in which local response capabilities are exceeded and a full community and consequence management response is undertaken to resolve the major disruption. A disaster

overwhelms the available resources and requires extraordinary resourcing to resolve. NASL management will activate the EOC with 24-hour staffing.

Emergency Plan (EP) Activation

The ERP is activated by notification or observations of a potential or actual emergency condition and escalated or de-escalated or de-escalated based on established Airport Emergency Levels. The activation and escalation processes are shown in the following chart.



Notification and Dispatch Responders/EOC members

HelpDesk Call Out:

The Helpdesk, upon the direction of the Airport Operations Manager will notify and dispatch in accordance with the emergency noted for each specific event. The Helpdesk uses detailed notification procedures to alert primary responders and supporting departments and agencies.

Assistance in Locating Aircraft

The assistance provided in locating an aircraft when notified that an Emergency Locator Transmitter (ELT) has been activated is done in accordance with SOPs (CAR 302.203 1z.1).

If an Emergency Locator Transmitter (ELT) is activated and the Airport Operations Manager is asked to find out what aircraft is sending out the distress signal. The procedure is:

The Airport Operations Manager or designate will contact Industry Canada (Monday through Fridays except on holidays from 8:00 a.m. to 1600 hrs local time) the number to call is: 204-983-7144. The Manager – Spectrum Canada; Allan Pawluk will arrange for DF steer to be completed.

If the ELT locator occurs after hours please email: Allan.pawluk@ic.gc.ca. He will arrange for a locate and will provide a response to the contact number provided in the email. Alternatively, call Allan Pawluk directly on cell number 204-290-3653.

Crash Alarm

The Emergency Standby/Crash Alarm Communication System is used to alert NASL Public Officer/ARFF staff of an Emergency Plan incident at Iqaluit Airport. Nav Canada operates the crash alarm system. NASL is responsible for maintenance of the system. The members of the EOC are notified by telephone call out procedures.

Public Warning

NASL uses the public announcement systems to warn people at the airport. We also have use of the fire alarm system to make everyone aware of an incident.

Reporting to Regulatory Agencies

There are a number of regulations that require report of incidents to federal, provincial, and other agencies such as:

- a. Transport Safety Board Regulations
- b. Quarantine Act
- c. Coroners Act
- d. Canadian Aviation Regulations (CARS)
- e. Canadian Aviation Security Regulations (CASR)

- f. Canadian Environmental Protection Act, 1999 (CEPA 1999) and other environmental regulations
- g. Occupation Safety and Health Regulations.

The agencies that have to be notified in accordance with applicable legislation may also be able to support the response by supplying additional resources (e.g., personnel, equipment and expertise). The guide for reporting to regulatory agencies is included in this document.

Notification of outside agencies to be made by telephone call out procedures.

7 Incident Response Roles and Responsibilities

Incident Response

Incident Response activities under the Emergency Plan and reflect the Airport Incident Management System and be coordinated with the broader Emergency Program.

The following outlines roles and responsibilities of NASL and key partners and stakeholders.

NASL Response Role

NASL, as the Airport Operator, will be involved and play a key role in all emergency incidents that impact Iqaluit Airport. NASL's involvement is mandated by various legal and/or regulatory requirements.

NASL will:

- Support inter-agency coordination and provide overall direction and support for airport operations to ensure that emergency response goals and airport priorities are achieved.
- Provide emergency response and support personnel and services for site and EOC activities.
- Ensure the public and stakeholders are kept informed as appropriate.

Site Role

NASL, in keeping with the Emergency Plan, will take command of the emergency response in specific incidents. NASL will provide resources in support of the response and rescue operations, participate in the assessment of the event and in the development of an incident action plan. In addition, the NASL will attempt to minimize any operational impact and maintain operational integrity of the Airport.

NASL will limit attendance at the emergency scene or emergency command centers to staff having a defined role or those specifically dispatched to assist.

EOC Role

NASL's Emergency Program includes the coordination of an Emergency Operations Center as part of its response strategy, if additional assistance is required by the On Scene Commander (OSC).

Emergency Responsibilities

NASL's responsibilities in the event of an emergency:

- Dispatch and deploy NASL personnel in support of the emergency to the appropriate locations, site, staging areas or EOC as required.

- Dispatch and deploy NASL resources as required in support of the emergency to the appropriate locations, site, or staging areas.
- Establish communications as or with, the On Scene Commander (OSC) to determine support and resourcing needs.
- In coordination with the OSC and/or other command staff on site, participate as required to develop current status, strategic and longer term support through the EOC; and provide coordination, support and resources for both site and EOC Operations.
- Obtain and provide regular status reports to and from response teams and other airport community and surrounding agencies, ensuring emergency response and airport priorities are achieved.
- Coordinate the safe transport and shelter requirements of evacuated persons in the event of a threat to their safety or airside operations are affected.
- Ensure ongoing crisis communications is maintained with staff, the public and stakeholders.
- Support post-response activities, such as investigations, crisis support, reporting, etc.

Response activities will be undertaken and decisions made, that reflect the response priorities at the scene and site support location of the EOC:

- a. Responder health and safety
- b. Health and safety of NASL employees, employees of partner agencies and visitors
- c. Protecting the environment, infrastructure and property
- d. Preserving evidence
- e. Continuity of business and recovery
- f. Reducing social, financial and economic loss

Incident Management and Overview

The Airport uses Incident Management System for responding to and managing levels of incidents, in concert with internal and external stakeholders.

Key Concepts

The system is adjustable, based on an appropriate balance of flexibility and standardization. We utilize management-by-objectives approach:

- a. Flexibility relates to the ability to start from a single unit response and expand or contract the response model as needed by the incident scope, resources, and hazards.
- b. Standardization is described as a set of standard organizational structures designed within a community to improve operability among multiple disciplines. Standardization also includes the use of common terminology, within a working timeframe, with the use of outlined strategies (action plans) and executed with appropriate coordinated tactics.

- c. Management-by-objectives is an approach where incidents are managed by aiming towards specific objectives, ranked by priority, attainable within a working timeframe, with the use of outlined strategies (action plans) and executed with appropriately coordinated tactics.

Incident Management

One of strengths of Incident Management is the ability to change the organizational structure to fit the level of an incident or emergency. It is designed as a modular and scalable process. It is adaptable for use in daily regular operations or for incidents and emergencies at any level. To maintain span of control the command structure may need to be expanded by delegating responsibilities (e.g., by defining new groups). Conversely, when the activity level of an incident decreases, the incident structure can contract to match new needs. This flexibility makes it a cost effective and efficient management approach for both small and large incidents.

Incident Commander and Command Transfer

NASL's on-scene controller is referred to as the Incident Commander. The first qualified arriving responder assumes command. The transfer of command is completed when the new Incident Commander (IC) confirms the transfer. The IC is recognizable as they will be wearing a white vest. When an incident is co-managed by two or more separate agencies, it is operating within a unified command.

Only a person who meets the following requirements may act as an on-scene controller:

1. ICS 100 and 200
2. Emergency site management training or 5 years' emergency management experience
3. Familiarity with NOTAM procedures
4. Familiarity with evidence preservation

General Functions and Relationships

The Incident Commander is assisted in the delivery of functions, at their discretion, by NASL support staff and the Command Post.

Command Post

NASL maintains a mobile command vehicle which will be deployed as needed. Procedurally the IC must be within visual range of the incident, but only if it is safe to do so. The Incident Commander and Public Safety Officer/Firefighters are in possession of Aircraft Crash Charts (302.206 section 1). These will be used in the event of an aircraft related incident. In the absence of crash charts for aircraft of not more than nine passenger seats, NASL shall maintain documents pertaining to the aircraft containing equivalent information.

All vehicles proceeding to the crash site must first attend the command post to ensure the safety of vehicles, aircraft and persons.

Emergency Operations Center (EOC)

Depending on the type and scope of an incident, the Incident Commander can activate the Emergency Operations Centre (EOC) and request appropriate representatives to attend. The EOC is the Unified Incident Management Location for civil aviation incidents involving Air Carrier Tenants and for incidents involving NASL property or assets. Senior level representatives from all involved agencies attend to determine overall strategy, long term planning, and objectives to resolve the incident.

EOC Facilities

The primary EOC centre is located in the Iqaluit Airport Terminal Building and the backup facility is contained within the Iqaluit Combined Services Building.

EOC Activation Levels

The EOC has three levels of operation:

Standby Incident Response

The EOC is also used as a meeting room. It is subject to meeting cancellations if a potential or actual event occurs.

Passive Monitoring

The EOC may be (partially) activated on the determination of the Incident Commander or Associate Services Director, with limited staffing levels to provide enhanced monitoring of potential activity or world events that may impact the airport. It will also provide an information contact point for EOC Manager and senior management situation reports.

Full Activation

On the determination by the Incident Commander or Associate Services Director full activation and staffing of the EOC may be implemented to provide a centralized location for the members to meet and determine overall strategy, long term planning and objectives required to mitigate or resolve the incident.

The EOC will normally be activated for events which have a substantial impact on the continuity of airport operations. If considered appropriate, however, the EOC may be activated during an IRROPS situation either at Increased Alertness or IRROPS Plans Activation. A NASL representative would be assigned to coordinate the monitoring and initial action required, without the full attendance of all EOC representatives.

EOC Activation Criteria

The EOC can be partially activated if one or more of the following criteria are met:

- a. The Incident Commander of NASL or another agency at the incident, requests activation of the EOC for support.
- b. A potential emergency or threat requires planning in advance (e.g., terrorist threat, severe weather alert or flood alert).
- c. A large scale event at the airport requires monitoring (phase 2 activation) (e.g., royalty visit).
- d. An incident outside airport boundaries may affect or affects the operations of Iqaluit Airport (e.g., landfill fire or building fire with smoke outside airport boundaries, International terrorist activities).
- e. A world event requires assistance from Iqaluit (e.g., assistance to park aircraft for an unspecified period of time).

EOC Responsibilities

The EOC has several key areas of responsibility. These include:

1. Development of the overall emergency management response strategies, such as public information/crisis communication and obtaining resources for the emergency site.
2. Management of strategic issues.
3. Conducting high-level discussions of strategic issues with external centers to exchange strategic information, including Federal, Provincial and Regional Government Ministries as required by the incident.
4. Ensuring the continuity of airport operations and services.
5. Ensuring corporate recovery and operational continuity.
6. Keeping the response team apprised of situations and requesting decision making where necessary.

EOC Organization

The ERP Manual provides information on the physical layout, equipment, and resources (e.g., resource inventory, aircraft crash charts and grid maps) and the Incident Commander has procedural material (SOP's, protocols and plans) as a guide for responses.

Mutual Aid and Resources

The NASL conducts an assessment annually to identify the gaps in resources and associated steps necessary to address them. A current inventory of internal and external resources is maintained at all times in our emergency procedures manual. We are continuously working with the Iqaluit City Fire and Paramedics, RCMP, DND and other inter-governmental agencies to deal with inventory, procedures, and

agreements as necessary and contact information this information is documented in our emergency plan (CAR 302.202 section 1d and 302.203 1c).

The term Mutual Aid / Mutual Assistance includes cooperative assistance agreements, service level agreements, intergovernmental contracts, or other terms commonly used for the sharing of resources. Mutual aid and assistance agreements between organizations are an effective means to obtain resources. The NASL continuously determines the need for assistance following the annual resource assessment and establishes necessary agreements. Agreements are referenced in the NASL resource plan (CAR 302.203 section 2a).

NOTE: Signed agreement to be incorporated prior to assumption of operations date (July 21, 2014).

Evidence Gathering and Data Recording

Data Recording and Collection

During an incident and in the recovery phase, all decisions, phone calls, (de)briefing etc., which may be required for incident investigation and follow-up (e.g., a formal evaluation) will be recorded. Data recording will take place in the EOC and at the incident site. Every agency is responsible for data recording and collection on an internal basis.

After an incident the responsible or designated officer collects and compiles all collected documentation for follow-up and investigatory purposes. These may include:

- All paper recording material, such as telephone notes, minutes, emergency status reports, briefing forms (shift change). NOTAMS
- All other data that may be important (such as weather reports).

Records retention within the NASL takes place in accordance to NASL's records retention schedules. External agencies are responsible for their own records retention.

Preservation of Evidence

Preserving evidence respecting reportable incidents and accidents is one of the priorities for first responders to pay attention to. Under the Canadian Transportation Accident Investigation and Safety Board Act the Transport Safety Board is authorized to investigate all transportation incidents for the purpose of making findings as to its causes and contributing factors. The NASL and our partners will preserve all records related to the incident as described above and will cooperate in making the on-board recording and any other communication record available (Canadian Transportation Accident Investigation and Safety Board Act (1989, c. 3, section 28 - 33).

The NASL has developed and implemented protocols for preserving site evidence and aircraft (part) removal/recovery (CAR 302.203 x i and ii). The Disabled Aircraft Plan outlines the processes and procedures for evidence collection. In addition NASL has procedures for airside inspections.

Coroner

CORONERS ACT R.S.N.W.T. 1988,c.C-20

The *Nunavut Coroners Act R.S.N.W.T. 1988, c.C-20* authorizes the (Chief) Coroner of Nunavut to take certain measures. The NASL and partners are obligated to cooperate with the coroner. They will coordinate any activities necessary for the coroner as required.

Emergency Plan

- a. No interference with or altering the body or its condition in any way until the coroner so directs.
- b. The coroner may take charge of the wreckage and place one or more police officers in charge of it so as to prevent persons from disturbing it until the jury at the inquest has viewed it, or the coroner has made such examination as he or she considers necessary
- c. The coroner may view or take possession of any dead body, or both; and enter and inspect any place where a dead body is and any place from which the coroner has reasonable grounds for believing the body was removed
- d. The coroner may inspect any place in which the deceased person was, or in which the coroner has reasonable grounds to believe the deceased person was, prior to his or her death
- e. The coroner may inspect and extract information from any records or writings relating to the deceased or his or her circumstances
- f. The coroner may seize anything that the coroner has reasonable grounds to believe is material to the purposes of the investigation

7.1 Communications Plan

One of the key functions of incident system is to prepare, initiate and maintain communications.

At Iqaluit airport several methods of communication are in use:

- Face-to-face communication
- Radio communications - NASL has access to several radio channels that we can operate. A number of those frequencies are designated for specific users
- RCMP have their own mobile radio system which is a digitally encrypted secure radio.
- The City of Iqaluit Fire and ambulance have their own mobile radio system which is a digitally encrypted secure radio NASL Fire Department has a set of radios for direct communication with the local emergency response crews
- NASL's Prime Radio System used for day to day non-emergency communications. IDEN channels and procedures are for NASL internal use

- VHF used by Air to ground units, operating on NAV Canada owned equipment The radio frequencies are used before, during and after an incident, Apron Advisory, FSS, and, Emergency Coordination – Airport Rescue and Firefighting (ARFF) ,International Emergency VHF frequency.
- Land line and cell phones
- Other communication devices such as fax machines and computers with internet (using Wifi).
- Radios and Cellular telephones are the primary method to allow immediate communication with other organizations identified in the emergency plan.

7.1.1 Communication SOP

NASL has developed standard SOP for radio communication, including the use of standard terminology and testing of equipment (CAR 302.203 section 1n – 1q).

Standard terminology is used during a response and communicated to all emergency response plan holders. For clarity, responders are to use the following:

- a. Definitions in Section 3 Acronyms and Definitions
- b. Section 5 Emergency Categories
- c. Standard Phraseology from the Restricted Aeronautical Radio Operator manual

All external agencies should have their own standard communication procedures.

Communication Between Site and EOC

The IC and EOC communicate via radio or cell phone.

Communication Between EOCs

When other agencies activate their EOCs it is important to establish and maintain communications with them for coordination purposes. This will be accomplished through telephone.

7.1.2 Airport Communication Equipment Testing

Airport Communication Equipment Testing procedures are to test hand held emergency communications daily through a radio check with NavCanada FSS and on the internal hand held radios. This information is documented in the daily records maintained by the Firehall. Records of all the tests and inspections are maintained according to the document retention standards.

Crisis Communication

The NASL has developed procedures to ensure timely consistent and accurate information dissemination, in the event of an emergency. Essential elements of crisis communication include:

1. A central point of contact for media.
2. Procedures to gather, monitor, and disseminate emergency information.
3. Pre-scripted information bulletins.
4. Procedures to coordinate and approve information for release.

5. Procedures to communicate with special needs populations.
6. Protective action guidelines/recommendations (e.g. shelter-in-place or evacuation).

It is imperative that all information relating to the incident and the operations or service level disruptions is coordinated with the involved and affected stakeholders. Media announcements require coordination and timing in order to reduce concern and to provide instruction.

Crisis Communication Cycles

Crisis communication cycles define the release of information to the media and public. The process (communication management cycles and coordination) is iterative and is repeated on a continuous basis. An adjustment period should be expected at the beginning of the process to determine frequency of reporting and update of information. It is important to address interoperability of communication systems as multiple responding organizations are involved. It has to be very clear who is communicating, how and about what.

Community Briefings

The Airport Community will be briefed on the status of an emergency and the impact on their operations. They will be provided with appropriate public information to pass on to their clients and staff regarding the incident.

Media Briefs

The information cycle for media briefs takes into account external factors, such as deadlines inherent in producing radio, television, and newspaper reports.

8 Follow up and Corrective Actions

Post Incident Activities

Debriefing

All exercises set out in CARs, section 302.208 and Emergency Procedures Manual activation for emergencies will be followed by a post-emergency debriefing session.

Internal

The NASL has established requirements for post incident internal debriefings of significant incidents or those that involve serious injury or death to personnel and/or customers. These debriefings can be small informal debriefing but in the case of Emergency Response Manual activation a formal face to face debriefing of all involved NASL personnel will take place. The Associate Services Director or Airport Operations Manager or designate is responsible for ensuring the internal Emergency Plan debriefings

take place and recommendations are compiled within a reasonable period of time; after the conclusion of the incident.

All involved agencies are responsible for establishing procedures for and organizing of internal debriefings.

External

Within a reasonable period of time; the external agencies that were involved with the response to a major emergency or disaster will be invited to attend a debriefing. The date of the debriefing will depend on when all of the responding agencies can actually meet with the NASL to hold the debriefing. But the debriefing will be held in a timely manner. The internal debriefing reports of all agencies will be used during the external debriefing. All agencies are invited to give feedback about the response, the procedures and plans that are in place, the lessons learned and future improvements.

Minutes

Minutes of debriefing sessions of exercises and Emergency Procedures Manual activations will be recorded.

Incident Reporting

The Associate Services Director, Airport Operations Manager or designate, will complete a formal incident report. It will include events of the incident, the operational impacts, concerns and issues, associated costs and recommendations and findings from the debriefings.

The incident report will also provide airside inspection results and accident site conditions to support the return of the airport to operation status after the emergency.

Corrective actions

The incident report will be the input for an evaluation of any deficiencies in the Emergency Procedures Manual. Changes will be made to the Emergency Procedures manual and related protocols and procedures if necessary and any modification to the plan will be (partially) tested.

Incident Recovery

Incident recovery involves all actions taken to recover from the incident. Some recovery strategies are already initiated while the incident is still going, others will be initiated as soon as the recovery phase is announced. In order to support short-term and long-term priorities for recovery of functions, services, resources, facilities, programs, and infrastructure the NASL has developed recovery procedures addressing safety and security, facilities, runways and airside inspections, disabled aircraft removal, accident or incident site conditions, infrastructure to and from the airport (road access, parking), supporting technology, utilities, airport services and NOTAM coordination, information and data, equipment and supplies, human welfare (e.g., physical, psychological, and financial) including the

assistance of persons that have been evacuated, tenants and partner agencies. Incident recovery and business continuity go hand-in-hand. In the recovery phase economic recovery and legal liability issues should also be addressed.

9 Incident Command System

9.1 Jurisdiction

The ARFF services and on-scene controller possess the necessary Incident Management Command training to assume the primary role for an aviation incident or accident only within the limits of the airport.

For all off-site responses to aviation incidents or accidents, the airport resources may be dispatched in support of the authority having jurisdiction.

For structural fires and other fires within the limits of the airport, but not related to aircraft, the airport AARF services will defer incident command to the City of Iqaluit Fire Service as soon as those services arrive on site.

For a threat of a Security or criminal nature, the incident command will be transferred to the responding RCMP officer on arrival.

9.2 Training of NASL Staff

All NASL employees will be trained in fire safety. This training includes, but is not limited to, workplace evacuation routes and task specific training to Fire Wardens, Fire Wardens are employees of NASL who have volunteered to serve in this capacity in the event of actual and non-actual events.

Qualifications required for On-Scene Controller include:

1. Incident Command Training 100
2. Emergency Operations Centre Training or Fire Officer Training
3. On the job mentoring by existing experienced on scene controllers through:
 1. a minimum of 2 table tops, and
 2. 1 live exercise or 1 actual response as on scene controller

Additional guidance material from Transport Canada and industry will be incorporated into the training curriculum.

Qualifications required for other personnel identified in the plan include, but are not limited to, the skills and training necessary to carry out their functions.

In the case of Aircraft Rescue Firefighters, personnel are trained in the following areas:

- Generic Training, including Vehicles and Equipment, emergency communications, safety, extinguishing agents, fire behaviour, portable fire extinguishers.

All training records are maintained by the Public Safety Officer and Associate Services Director. Specific training activities and qualifications are maintained both electronically and on paper (as appropriate) within the respective files associated with each employee.

9.3 Testing of Emergency Plan

The Airport will conduct full scale, operational, exercises every two years. Records from the exercises will be maintained for ten (10) years after the day that the record was created.

Operational exercises will be conducted from one of the following: major emergency, crash on airport, crash off airport, or aircraft malfunction.

At a minimum fire-fighting, policing and medical services are to be involved in operational exercises.

Planning checklists for emergency exercise tests are attached for reference as Appendix A.

Evaluation of emergency exercises is fundamental to improvement of the plans. A sample evaluation form is attached for reference as Appendix B.

9.4 Organizations span of control

The lines of authority and responsibility supporting each specific agency beyond the airport are established by those individual agencies. The roles of the following agencies in regards the Iqaluit Airport Emergency Plan are detailed in the following section.

1. FSS (Flight Service Station)
2. ARFF (Aircraft rescue Fire Fighting)
3. Airport Security
4. AOM (Airport Operations Manager)
5. NEM (Nunavut Emergency Management)
6. Airport contractor
7. City of Iqaluit Fire Department
8. City of Iqaluit Ambulance Service
9. RCMP (Royal Canadian Mounted Police)
10. CBSA (Canadian Border Services Agency)
11. BRH Emergency (Qikiqtani Regional Hospital Emergency)
12. EOC (Emergency Operations Centre)
13. Coroner
14. Clergy

Airport Tenants and facilities Owners/Operators

Tenants and Facility Owner/Operators are expected to maintain their own emergency plans and protocols to support to their emergency response requirements, as well as to communicate with NASL as needed. The following groups of tenants currently operate on Airport property:

- Food and beverage services
- Concessions and retail service providers
- Ground Transportation service providers
- Airlines, Hangars and Ground Handlers
- Government Agencies
- Non NASL Tenants and Facility Owner/Operators
- Fixed Base Operators
- Cargo Carriers
- Department of National Defense

Airlines and Ground Handlers

Emergency Roles

The Air Carriers and/or Ground Handlers are responsible for providing information to the On-Scene Commander (OSC); providing technical assistance, equipment, and staff to assist the emergency response. They will actively take part in the assessment process and in the development of an incident action plan for dealing with the event. Their Emergency Plan will reflect the expected participation in the airport's management of incidents up to and including a Disabled Aircraft Recovery Plan.

Site Roles

A representative will be sent to the site to coordinate activities related to the airline's area of responsibility.

EOC Roles

A senior official will attend the EOC to represent the Airline.

Emergency Responsibilities

- Provide information and technical advice to the OSC.
- Provide passenger and cargo manifests (including hazardous materials) as soon as possible.
- For outbound aircraft, confirm the fuelling agent and fuelling device has been isolated for inspection by the Transportation Safety Board.
- Establish a Family & Friends Center, Survivors Center and a Reunification Center at an appropriately secure location with the assistance of NASL.
- Provide a Media Officer to participate in the joint coordination and release of information.
- In consultation with the OSC, arrange for transportation for uninjured passengers from the scene to the Survivors Center.
- Provide aircraft servicing equipment (i.e., mobile stairs, baggage carts, etc.)
- Remove disabled aircraft and/or wreckage as soon as possible upon authorization of the Transportation Safety Board of Canada.

9.4.1 FSS (Flight Services Station)

The role of the FSS during an emergency is to advise the agencies concerned as stated in each of the emergency sections of this Emergency Plan under the title “FSS”.

In the event of an accident or incident that compromises Nav Canada’s ability to operate from the FFS cab in the Air Terminal Building, radio communications and telephone connections are available in the airport fire hall training room.

9.4.2 Public Safety Officer

Outside of published hours for ARFF coverage, the on-duty Fire Fighter will assume duties of Public Safety Officer.

1. Declare the emergency code to be used.
2. Direct the ARFF operations.
3. Secure the area of a crash site.
4. Establish a triage area.
5. Manage the rescue operations.
6. Assume overall control at a crash scene or during an emergency on the airport, until released by the Airport Operations Manager.
7. Apply all the procedures in this emergency plan, given under ARFF (Public Safety Officer) for each of the emergency codes declared.

9.4.3 ARFF

1. The primary objective of the ARFF service is to save lives. The ARFF shall take the necessary action (s) to prevent, control or extinguish fire involving or adjacent to an aircraft for the purpose of providing fuselage integrity and an escape area for its occupants.
2. Secure the crash site so safe rescue operations may be conducted.
3. Stand by during aircraft emergencies.
4. Apply first aid when necessary.
5. Use extrication tools and all other firefighting equipment that may be required during an emergency.
6. Perform all other emergency related duties.

9.4.4 Airport Security

1. Whenever an emergency is declared, the security guard on duty will initially secure gate 5 and ensure only authorized personnel are given access to the airport. Once relieved at gate 5 the Security Guard will secure the terminal building and ensure that normal services are provided.
2. If the emergency is a structural fire at the terminal building, the security guard will proceed as per the section related to structural fire. Apply all the procedures given in this emergency plan under “Airport Security” for each of the emergency codes declared.

9.4.5 Airport Operations Manager or Designate

The described roles of the Airport Operations Manager may be assumed by the person fulfilling the role of the On-Call Manager. This person will be familiar with the airport operations and with the Emergency Plans.

The on call manager will be appointed at all times, and will carry the on-call phone with the number listed in this plan. On Call Manager schedules are communicated to airport users as required.

Whenever an emergency is declared, the On-Call manager will:

1. Proceed to the EOC (Emergency Operations Centre).
2. Verify that all the emergency related agencies are present at the EOC.
3. Advise the ED &T Aircraft incident-reporting centre.
4. Issue appropriate NOTAM and OIRS.
5. Advise the Help Desk as required.
6. Supply Help Desk and management team with updates.
7. Apply all the procedures in this emergency plan given under “Airport Operations Manager or designate” for each of the emergency codes declared.

9.4.6 Airlines

9.4.6.1 Aircraft accident ON or OFF airport

Upon receiving, a call “Crash on or in vicinity of airport”, the base manager or the representative of the airline involved will immediately proceed to the EOC (Emergency Operations Centre) located in the conference room on the second floor of the terminal building.

Once at the EOC (Emergency Operations Centre) the base manager of the airline involved will, at the request of the Airport Operations Manager, or on-call designate:

1. Provide information about the number of persons on board.
2. Provide information about the dangerous cargo and its location if applicable.
3. Dispatch personnel and equipment to the scene.
4. Dispatch personnel to act as stretcher-bearers and evacuation crew.
5. Take care of calls from family members of passenger involved in the accident.
6. The airline company is responsible for the evacuation, the transport and comfort of their passengers.
7. The airline companies’ personnel may be designated as evacuation crews and stretcher-bearers and will be called to the scene by the base manager or the senior representative of the airline involved as needed.
8. Upon authorization from the Transportation Safety Board of Canada, the airline company will take all the measures for the removal and disposal of the aircraft.

Aircraft accident or lost remote from the airport jurisdiction

At their request, the airline staff may require the use of the airport EOC facility to facilitate the required actions.

9.4.7 NEM (Nunavut Emergency Management)

1. The primary role of the Territorial Emergency Measures Officer who is the Deputy Minister of Community Government Services is to ensure that required manpower, equipment and technical advice is provided as required.
2. In most cases the Territorial NEM or designate will proceed to the EOC and utilizing the full NEM team, will assist the Airport Operations Manager in dealing with all aspects of the incident.
3. Apply all the procedures given in this emergency plan under “NEM” for each of the emergency codes declared.
4. Keep the Minister Responsible for Civil Emergencies who is the Minister of Department of Community Government Services fully informed at all times throughout the incident.
5. Will set up the On Site Command Centre bus for all incidents.

9.4.8 City of Iqaluit Fire Department

1. The role of the City of Iqaluit Fire Service is to act as Incident Controller in structural fires and fires not involving aircraft. The City Fire Services will provide assistance and support of the ARFF in fires involving aircraft.

9.4.8.1 Meeting Points

The initial meeting point for emergency responses involving aircraft will be GATE 5, adjacent to the Air Terminal Building. Staging area will be airside, in proximity to the fire hydrant.

1. Structural Fires:
 1. ATB (Air Terminal Building)
 2. Canadian Cargo
 3. First Air Cargo
 4. Gate in front of the terminal building.
 5. Bradley,
 6. RCMP Air Hanger,
 7. Kenn Borek Hanger
 8. Gate by Terminal or Federal gate.
 9. Forward Operating Location
 10. Gate at the FOL.
2. During Aircraft Emergencies
 1. Proceed Gate 5 and then to the staging area between Frobisher Bay Touchdown and Air Nunavut to supply the Airport Fire Department with additional equipment, trained personnel and re- supply airport crash vehicles.
 2. Help with first aid and extrication of victims.

3. Supply additional lighting if needed.
 4. Apply all the procedures given in this emergency plan under “Fire Department” for the emergency code declared.
3. During Structural Fires
 - g. Once on the scene, take complete charge of the Firefighting task with the help of the Airport Fire Department.
 - h. Apply all the procedures given in this emergency plan under “Fire Department” for the emergency code declared.
 4. City of Iqaluit Ambulance Service
 1. Meeting point: The initial meeting point for emergency responses will be GATE 5, adjacent to the Air Terminal Building.
 2. Staging area at the gate in front of the terminal or federal building depending on the situation.
 3. Apply all the procedures given in this emergency plan under “Ambulance Service” for the emergency code declared.

9.4.9 RCMP (Royal Canadian Mounted Police)

NOTE: RCMP has criminal jurisdiction at Iqaluit International Airport. All criminal acts such as: bomb threat, hijacking, or sabotage, etc., shall be controlled by them.

The first Member on site will come to the EOC. Subsequent arriving officers will arrive at the staging area at Gate 5, adjacent to the Air Terminal Building.

The duties of the RCMP are as follows:

- a. During an Aircraft Emergency
 1. Establish a security perimeter at site of crash.
 2. Protect evidence, valuables and prevent looting.
 3. Protect and secure the mail.
 4. Remove all unwanted bystanders.
 5. Perform all other law enforcement duties.
 6. May have to act as coroner.
- b. During a Bomb Threat
 1. Conduct the search of the aircraft or building.
 2. Secure the area.
- c. During a Hijacking
 1. The officer in charge will contact the National Civil Aviation Security Coordinator who will help coordinate the emergency and deal with the hijackers.

2. The officers in the field will meet at the command post where the Airport Operations Manager and Public Safety Officer will brief them on the situation and stand by for further instructions.
3. Apply all the procedures given in this emergency plan given under RCMP for each of the emergency codes declared.

9.4.10 CBSA (Canadian Border Services Agency)

CSBA is the integration of the Customs, Immigration and Canada Food Inspection Services; if any of these are compromised CSBA shall be called.

9.4.11 Qikiqtani General Hospital Emergency

Meeting Point: The gate in front of the federal building.

- a. The Roles of the Medical Team
 1. Once on the scene of an emergency evaluate the condition of victims as per standard triage, procedures (see section of this emergency plan).
 2. Have the tagged casualties transported to the triage area established by the Airport Operations Manager or designate.
 3. Apply initial emergency first aid.
 4. Re-evaluate the victims at the triage area when and if possible.
 5. Apply all the procedures given in this emergency plan under “Medical Team” for each of the emergency codes declared.
 6. The Medical Team shall be the agency of primary response for any major medical emergency. Example:
 - i. Contamination
 - ii. Food poisoning
 - iii. Serious illness
 - iv. Contagious illness
 - v. Quarantine
 7. The agencies listed in this manual shall support the Medical Team if required.

9.4.12 EOC (Emergency Operations Center)

Located in the conference room on the second floor of the terminal building, the role of the EOC is:

- a. Co-ordination of all operations during an airport emergency
- b. To supply the Airport On Scene Controller with the resources he may require on the scene.
- c. Take care of advising the Minister, local search and rescue, dealing with the media, and all other emergency related tasks.

In the event of an accident or incident that compromises the ability to operate from the EOC in the Air Terminal Building, radio communications and telephone connections are available in the airport fire hall training room.

9.4.13 Coroner

Meeting Point: Is at Gate 5 Guardhouse.

The coroner will be requested to proceed to the scene of any accident where there are fatalities, and to:

- a. Determine the cause of death.
- b. Identify the corpses.
- c. Fill out the death certificates and issue burial permits.
- d. Determine if the deaths are of a criminal or accidental nature.
- e. Apply all the procedures given in this emergency plan under “Coroner” for each of the emergency codes declared.
- f. Apply coroner’s law.

9.4.14 Clergy

Meeting Point: Is in the staging area at the Gate 5 Guardhouse

In the event of a crash or any other incident where there are casualties or fatalities, the clergy will be asked to proceed to the scene of the incident to see to the spiritual and religious needs of the persons involved in the incident.

9.4.15 Flight Service Station

Note: The emergency/backup Flight Service Station is located at the airport fire station. If situation warrants, relocate and establish operations at emergency/backup location.

Important Phone Numbers

CONTACT NAME	CONTACT NUMBER
PRIMARY LOCAL CONTACTS (ON & OFF AIRPORT PROPERTY)	
Nunavut Airport Services Ltd.	
Airport Emergency Line	867-877-6510
Help Desk	867-877-6060
Services Director, Michael O’Gorman	204-223-4786
Associate Services Director Office	867-877-6491
Associate Services Director Cell	867-877-1970
Airport Operations Manager Office	867-877-6492
Airport Operations Manager Cell	867-877-1971
Supervisor, Building & Field Maintenance	867-222-1047
On Call Manager, via Help Desk	867-877-6060
Public Safety Officer Cell	867-877-1975
Emergency Operations Center (E.O.C) [During Emergency Only]	
Airport Pass Office	867-877-6060
Airport Pass Office Cell	867-877-1978
Twilite Security	
Security Air Terminal Building	975-7767
Security Gate 5	979-3125
Airline Companies	
Air Inuit	1 800 361-5933
Air Nunavut	979-4018
Canadian North	979-5274
Cargojet	1-800-753-1051
First Air/Bradley	979-8338
Keewatin Air	1-877-879-8477
Kenn Borek Air	979-0040
Nolinor Airlines	450 476 0018
Summit Air	979-3568
Flight Service Station (FSS)	
Flight Service Office	979-5865
Flight Service Manager	979-5247
Fixed Base Operator (FBO)	
Frobisher Bay Touchdown Services (day)	979-6226
Frobisher Bay Touchdown Services (night)	222-1202
Apron Management	979-6221

Fuel Services	
Uqsuq Corporation (day)	979-1620
Uqsuq Corporation (night)	222-2855
Uqsuq Corporation General Manager France Bescumi	222-1089
Bussing	
R.L. Hanson	979-2408
City of Iqaluit	
Fire Department Dispatch 24/7	979-4422
Ambulance Dispatch 24/7	979-4422
Government of Nunavut	
Main Office	867-975-6049
Communications Director Catriona MacLeod	867-975-6049
Arctic Infrastructure Partnership	
CEO, John Woods Office	1-647-789-6750
CEO, John Woods Cell	1-647-227-8730
Nunavut Emergency Management (NEM)	
Main Office	979-5850
NEM Office	979-6262
24/7 Emergency	1-800-693-1666
Royal Canadian Mounted Police (RCMP)	
Local Detachment	979-1111
Coroner	
24 hour contact	975-7292
Department of National Defense	
DND Office	1-867-873-0700
Detachment Commander JTFN	979-7431
OUTSIDE AVIATION REPORTING AGENCIES	
Civil Aviation Operations Center (CACO)	
Office Hours	1-613-992-6853
24/7 Emergency Toll Free	1-877-992-6853
Transportation Safety Board of Canada	
6:30 – 16:30 (EST)	1-514-633-3246
After Hours	1-514-633-3246

Transport Canada Regional Offices	
Civil Aviation Operations Center	1-613-993-6109
OUTSIDE AVIATION REPORTING AGENCIES (continued)	
Regional Director, TC Security	1-204-983-2168
TC Duty Inspector	1-204-984-1625
COMMUNITY RESOURCES	
Accommodations	
Capital Suites	975-4000
Discovery Lodge	979-4433
Frobisher Inn	979-2222
Navigator Inn	979-6201
Arctic Inn	979-6684
Qikiqtani General Hospital	
Emergency	975-8609
Canadian Border Services Agency	
Agency – Cell	975-1584
Agency – Office	979-6714
Agency – Pager	979-3457/*018
Canadian Coast Guard	
Office in Charge	979-5260
In Season Only	979-5269
CANUTEC	
24/7 Emergency	1-613-996-6666
City of Iqaluit Public Offices	
Administration	979-5600
By-Law Enforcement	979-5669
Public Works	979-5649
DIAND	
Iqaluit Office	975-4500
ED & T	
ED&T Headquarters Iqaluit	975-7800
Nunavut Airports Division (Headquarters)	645-8200
Clergy	
Anglican Church	979-5595
Baha’I Faith	979-6580

Catholic Mission	979-5805
Pentecostal	979-5779
Forward Operating Location (F.O.L.)	
Public Works Canada	975-4650
Contractors	
Lawlor Mechanical	979-8691
Kudlik Construction	979-1166
Nunavut Excavating	975-3320
Arctic Circle Construction & Development	979-4130
Baffin Building Systems	979-6949
Canadrill Ltd	979-6031
GC North Inc.	979-1992
KRT Electrical	979-2639
Narwhal Plumbing & Heating	979-6350
Nunavut Construction	Cell 222-1188 979-7711
RL Hanson Construction	979-6004
Tower Arctic Ltd.	979-6465
News Media Numbers	
CBC News Office	979-6100
CBC News 5:00 – 9:00 EST Weekdays	979-6129
CBC News 9:00 – 17:00 EST Weekdays	979-6128
CBC News Evenings & Weekends Cell	975-1066
CBC News Evenings & Weekends Cell	975-1067
CKIQ 99.9 Raven Rock	975-2100
CKIQ Office Line	975-2547
Inuit Broadcasting Corporation	979-6231
News/North	979-5990
Nunatsiaq News	979-5357
Phone Company	
Northwestel 24/7 Emergency	611

10 Emergency Plans

10.1 Section 1: Types of Emergencies and Response

Types of Emergency	FSS Call Protocol
Aircraft accident <ol style="list-style-type: none">1. Within the airport boundaries2. Within a critical rescue and fire-fighting access area3. In water either end of runway4. Fuel system and pipeline end of runway 34	Proceed to call Protocol number 1 See note A in Protocol 1 See note B in Protocol 1.
Aircraft Incident <ol style="list-style-type: none">1. Within the airport boundaries2. Within a critical rescue and fire-fighting access area3. Mechanical	Proceed to call Protocol number 2 See note A in Protocol 1
Aircraft declared emergency <ol style="list-style-type: none">1. Bomb Threat2. Hijack3. Sabotage4. Act of Unlawful Interference	Proceed to call Protocol number 3
Fuel spill	Proceed to call Protocol number 2
Hazardous material	Proceed to call Protocol number 2
Medical emergencies	Proceed to call Protocol number 4
Structural Fire at the airport	Proceed to call Protocol number 5
Bomb threat at the airport	Proceed to call Protocol number 3
Military Aircraft with Ordinance	Proceed to call Protocol number 6
Natural Disasters	Proceed to call Protocol number 7

FSS Call Protocol 2

<u>During ARFF operational Hours</u>	<u>Outside ARFF Operational hours</u>
<p><u>F.S.S (Flight Service Station)</u></p> <ol style="list-style-type: none"> 1. Call ARFF on direct line or Crash Bell as appropriate 2. Once in contact with ARFF via 122.6 radio give all pertinent information known: <ol style="list-style-type: none"> a) Type of aircraft b) Number of souls (if known) c) Amount of fuel (if known) d) Dangerous Cargo (if known) e) All other useful information 3. Call Airport Emergency Line 877-6510 advise of situation 4. Resume FSS emergency procedures 	<p><u>F.S.S (Flight Service Station)</u></p> <ol style="list-style-type: none"> 2. 1. Call Airport Emergency Line 877-6510 and declare: <ol style="list-style-type: none"> a) Nature of emergency b) Type of aircraft c) Number of souls (if known) d) Amount of fuel (if known) e) Dangerous Cargo (if known) f) All other useful information 3. Once in contact with ARFF via 4. 122.6 radios give all pertinent information known 5. Resume FSS emergency procedures
<p>If an aircraft accident occurs proceed to Call protocol Number 1</p>	