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REPORT

Government of Northwest Territories Department of Infrastructure

Inuvik Mike Zubko Airport Infrastructure Upgrades and Operations Erosion and Sediment Control Plan



MAY 2023



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REVISIONS PAGE

Inuvik Mike Zubko Airport
Infrastructure Upgrades and Operations
Erosion and Sediment Control Plan

Client:	Engineer:
Government of Northwest Territories Department of Infrastructure (GNWT-INF)	Associated Engineering (B.C.) Ltd. (Associated)

Revision/ Issue	Date	Description	Prepared by/ Reviewed by	Client Review
1.0	2023-05-25	Submission for water licence application to the Gwich'in Land and Water Board	Associated	GNWT-INF

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LIST OF ABBREVIATIONS

Abbreviation	Definition
CEMP	construction environmental management plan
DFO	Fisheries and Oceans Canada
EM	environmental monitor
ESC	erosion and sediment control
ESCM	erosion and sediment control manual
ESCP	erosion and sediment control plan
GNWT	Government of Northwest Territories
GLWB	Gwich'in Land and Water Board
GTC	Gwich'in Tribal Council
INF	Department of Infrastructure

1 INTRODUCTION

The Government of Northwest Territories (GNWT) Department of Infrastructure (INF) retained Associated Engineering (B.C.) Ltd. (Associated) to prepare an erosion and sediment control plan (ESCP) for the infrastructure upgrades and runway extension (the project) at the Inuvik Mike Zubko Airport (Inuvik Airport) and for regular maintenance of the drainage ditches and operation of the Inuvik Airport. The airport is located approximately 12 km east of Inuvik, NT (Figure 1-1). The upgrades to the drainage system require a Type B water licence application to be submitted to the Gwich'in Land and Water Board (GLWB) under the *Mackenzie Valley Resource Management Act* (SC 1998, c. 25) and the *Northwest Territories Waters Act* (SNWT 2014, c. 18) and regulations. This ESCP will form part of the water licence application.

The proposed construction contractor will be responsible for implementing the ESCP and must update it with company and site-specific erosion and sediment control measures. The ESCP shall be incorporated in their construction environmental management plan (CEMP) to be submitted at least 14 days prior to the scheduled start of construction and approved by Associated before construction begins. The ESCP and CEMP are considered living documents and must be updated as site conditions change and/or new information becomes available.

This ESCP follows the Land and Water Boards of the Mackenzie Valley's Standard Outline for Management Plans (LWB 2021).

1.1 Project Description

GNWT-INF is completing infrastructure upgrades and constructing a 914-metre runway extension at the Inuvik Airport. This project includes necessary upgrades to the drainage system that will change the paths and discharge locations of run-off from the Inuvik Airport and upland areas. Defined ditches will be constructed to the east, west, and south of the airport to transport run-off to Chii Zhit Van (Dolomite Lake) and East Lake. The proposed approximate project footprint and approximate project area¹ boundaries and the proposed drainage ditches are shown on Figure 1-2.

Construction will require vegetation clearing, grubbing, soil excavation, grading, and installation of erosion control measures in the ditches by heavy equipment. An outfall, consisting of a gabion basket check dam and gabion splash mat pad, will be installed above the ordinary high-water mark of both lakes, approximately 5 m above the ordinary high-water mark of Chii Zhit Van and approximately 18 m above the ordinary high-water mark of East Lake. The design drawings related to erosion and sediment control are provided in Appendix A.

After construction of the drainage ditches is complete, regular monitoring and maintenance of the drainage ditches is anticipated for the drainage ditches to maintain proper function. Maintenance activities may include removing snow, vegetation, debris, and sediment build-up from culverts and ditches, regrading ditches, and repairing ditches with rock, riprap, and hydroseeding with a native grass mix.

¹ The approximate **project footprint** is the proposed area where direct, physical disturbance to the land will occur as a result of construction (e.g., vegetation clearing, excavating, and installing erosion and sediment control measures). The approximate **project area** is the area that may be disturbed during construction either indirectly as a result of construction (e.g., noise, vibration), or by other means such as equipment access on existing roads and in the quarry and collecting surface water and sediment samples at the proposed sampling locations.

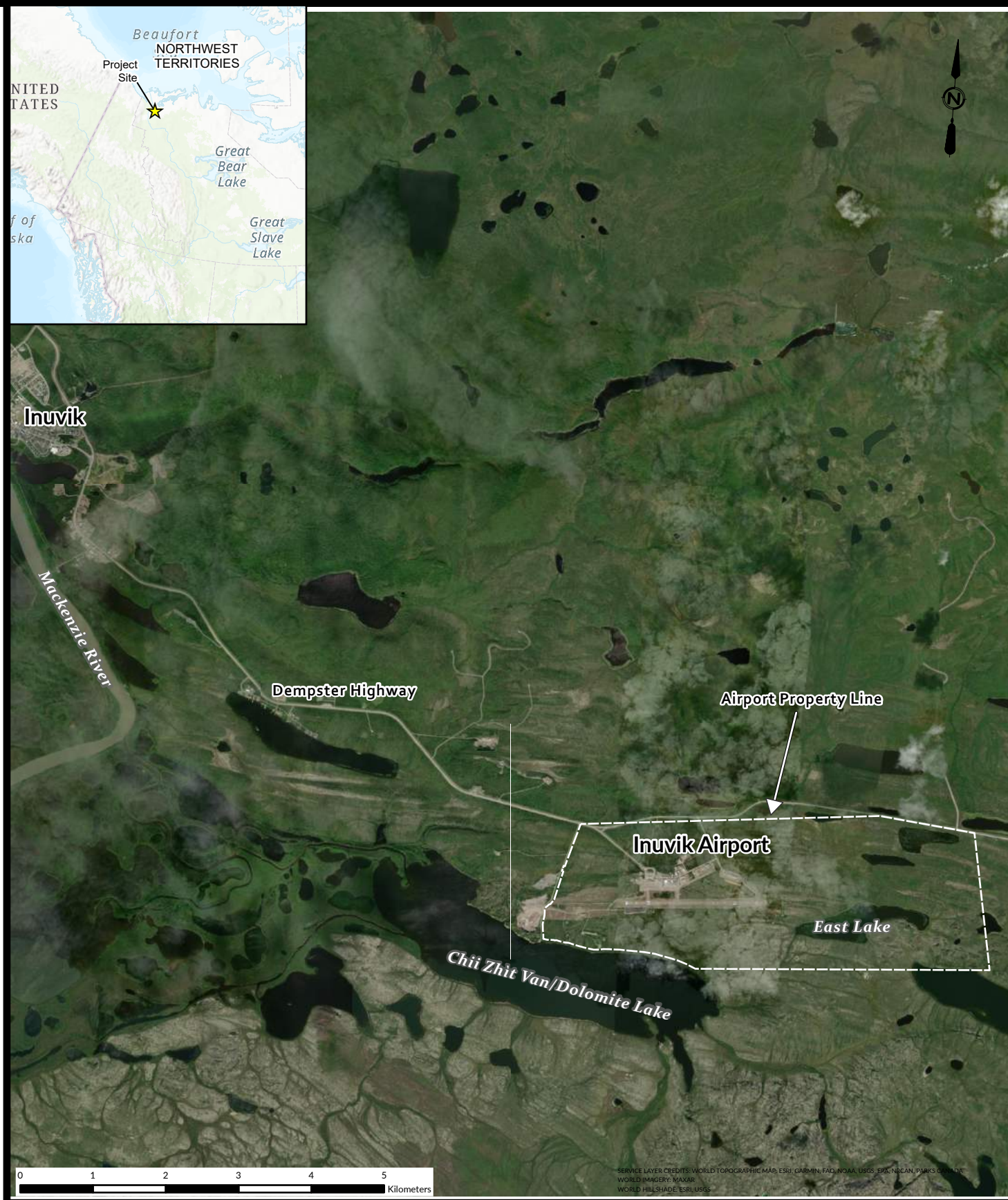
1.2 Project Activities with the Potential to Affect Erosion and Sediment Risk

Erosion is the process in which, through the actions of wind or water, soil particles are detached and transported. Sediment is eroded material suspended in wind or water and sedimentation is the deposition of eroded material. Erosion and sedimentation can have adverse effects on the environment. The following project activities have the potential to result in environmental impacts from erosion and sediment transfer:

- Improper timing and sequence of construction and development activities and/or prolonged exposure of unprotected areas to poor weather conditions;
- Removal of plant cover through vegetation clearing and grubbing;
- Increased soil exposure to wind and water during soil excavation, handling and stockpiling;
- Changes in drainage area and patterns (i.e., hydrology) from grading operations and diversions;
- Soil compaction by heavy equipment used for construction and maintenance that can reduce water intake of soils;
- Work adjacent to water and sedimentation risk (no instream work or work below the ordinary high-water mark is expected to occur);² and
- Lack of maintenance of erosion and sediment control measures.

² The ordinary high-water mark is defined as the usual or average level to which a body of water rises at its highest point and remains for sufficient time to change the characteristics of the land. In lakes this refers to the parts of the banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominantly aquatic vegetation to terrestrial vegetation (DFO 2022a).

C:\USERS\WASAWO\ONE\DRIVE - ASSOCIATED ENGINEERING GROUP LTD\DESKTOP\ASSOCIATED ENGINEERING PROJECTS\INUVIK DRILLING\INUVIK AIRPORT FIGURE 1.APRX



AE PROJECT NO. 2020-2886
SCALE 1:72,000
COORD. SYSTEM NAD 1983 UTM ZONE 9N
DATE 2023-04-19
REV 02
DRAWN BY AW
CHECKED BY CM

FIGURE 1-1 INUVIK AIRPORT LOCATION

GOVERNMENT OF NORTHWEST TERRITORIES
DEPARTMENT OF INFRASTRUCTURE

INUVIK AIRPORT
CIVIL INFRASTRUCTURE IMPROVEMENTS
INUVIK AIRPORT RUNWAY 06-24 EXTENSION



LEGEND

- ▲ Outfall
- Approximate project footprint
- Approximate project area
- Proposed drainage ditch
- Proposed eastward drainage ditch
- Proposed westward drainage ditch
- Proposed south westward drainage ditch

AE PROJECT NO.	2020-2886
SCALE	1:12,000
COORD. SYSTEM	NAD 1983 UTM ZONE 8N
DATE	2023-05-02
REV	00
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CHECKED BY	CM

FIGURE 1-2: PROJECT WORK AREA
GOVERNMENT OF NORTHWEST TERRITORIES
DEPARTMENT OF INFRASTRUCTURE
INUVIK AIRPORT - CIVIL INFRASTRUCTURE
IMPROVEMENTS AND RUNWAY EXTENSION

1.3 Regulatory Requirements

Several federal and territorial acts and regulations related to the erosion and sediment potential are applicable to the project, as detailed in Table 1-1.

Table 1-1 Applicable Legislation

Legislation	Summary and Requirements
Federal Legislation	
<i>Canadian Navigable Waters Act</i> (RSC, 1985, c.N-22)	- Protects waters on which the public has the right to travel. - The type of work and interference with navigation dictates what level of project review is required, if any, and public notice requirements. - A No Interference with Navigation Notification of Work is required.
<i>Fisheries Act</i> (RSBC 1985, c. F-14)	- Main federal legislation for Canadian fisheries management through the conservation and protection of fish and fish habitat. - Project works involve the removal of riparian vegetation that has the potential to alter fish habitat. - A request for review form will be submitted to Fisheries and Oceans Canada (DFO) in May 2023 for the project.
Territorial Legislation	
<i>Mackenzie Valley Resource Management Act</i> (SC 1998, c. 25)	- Established public boards regulate the use of land and water, prepare regional land use plans to guide development, and carry out environmental assessment and review of proposed projects in the Mackenzie Valley. - The GLWB commonly requires management plans with applications and as conditions of land use permits and water licences.
<i>Northwest Territories Waters Act</i> (SC 1992, c. 39) and regulations	- Governs the use of water in Northwest Territories. - A Type B water licence is required from the GLWB as miscellaneous undertakings for a deposit of waste (i.e., total suspended solids).

2 CONSTRUCTION EROSION AND SEDIMENT CONTROL MEASURES

Construction activities will follow the mitigation recommendations described in this ESCP, the contract specifications, and any approvals or permits from Fisheries and Oceans Canada (DFO), the GLWB, and any other relevant regulations for construction works.

The following best management practices and mitigation measures will be implemented to protect against erosion and sedimentation part of construction and maintenance activities:

- Measures to Protect Fish and Fish Habitat (DFO 2022b).

- Erosion and Sediment Control Manual (ESCM), including best management practices, where applicable (GNWT-DOT 2013, GNWT-INF 2022).³
- Requirements and Best Management Practices for Making Changes In and About a Stream in British Columbia (Government of British Columbia 2022), where applicable.

2.1 Contractor Responsibilities

The contractor will be responsible for ensuring compliance with the ESC measures outlined in this document including the implementation, inspection (including proper documentation), and maintenance of site-specific erosion and sediment control measures during construction. Their CEMP will include the ESC measures from this document and additional contractor and site-specific erosion and sediment control measures that will be reviewed and be approved by Associated before construction begins.

When the construction is completed and the permanent ESC measures are in place and functioning (e.g., screened rock in place and established vegetation), temporary best management practice measures (e.g., silt fencing along the shore) shall be removed upon direction from Associated.

2.2 General Erosion and Sediment Control Requirements

The following general erosion and sediment control requirements will be followed by the contractor during construction activities:

- Schedule phased construction (where possible) to reduce the area of soil disturbance and perform progressive reclamation as applicable (e.g., as construction is completed).
- Not destroy, remove, or clear vegetation to the extent greater than is absolutely necessary to perform the work and maintain vegetative buffer strips, where possible.
- Clearly mark vegetation clearing limits and soil excavation limits to avoid unnecessary removal and damage of vegetation and soil.
- Identify and mark sensitive environmental features (e.g., wetlands) within and adjacent to the project boundaries.
- Stabilize construction entrances, construction routes and laydown areas immediately using temporary or permanent stabilization measures.
- Protect areas of the project area which are characterized by poor drainage, standing water, intercepted groundwater, and areas where run-off drains toward Dolomite Lake or East Lake from erosion and sediment transport.
- Minimize excavation into permafrost to the degree necessary to complete the work. Construction scheduling shall be planned in the winter to minimize thermal disturbance.
- Not complete drainage and grading work in areas that have the potential for erosion and sediment transport to water during periods of heavy precipitation run-off.
- Roughen disturbed slopes as per the GNWT-DOT and GNWT-INF ESCM best management practice #27 (2013, 2022), where possible.

³ The 2022 version of the ESCM has not been published online at the time of writing this report. Contact GNWT-INF to request the 2022 version.

- If water is discharged on land, the water will be dissipated over a well-vegetated area with the use of energy dissipation devices to minimize scour, including the use of commercial filter bags to filter sediment; no dewatering is to occur directly onto exposed soil or into any wetland or watercourse.
- Where dewatering is required, intakes of pump hoses used to withdraw water from low areas will be elevated to minimize intake of sediment. Use of rock sumps or slotted buckets may also be used to minimize intake of sediment/mud. All pumps to be outfitted with screens per DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines in fish-bearing waters (DFO 2020).
- Restore any unused bare areas with a native seed mix and/or soil bioengineering techniques, such as live staking. Revegetation strategies (including proposed seed mix) to be approved by Associated prior to implementation. Seed certificates for all seed to be submitted to Associated for review.
- Properly install and maintain all ESC measures for proper function as per the GNWT-INF ESCM (2022) (e.g., removal of accumulated sediment behind silt fence once sediment accumulates to a depth of 0.3 m).
- Additional ESC measures (terrestrial and aquatic) (e.g., coir rolls, silt fence, turbidity curtain) to be stored onsite and readily available to address environmental emergencies. Ensure staff onsite have sufficient training to respond to an emergency sediment release (i.e., terrestrial and/or aquatic).
- Provide regular inspections and ensure the individual(s) performing the inspections has appropriate training and/or experience in ESC inspections.

2.3 Erosion and Sediment Control Measures For Work Adjacent to Water

Vegetation clearing, grubbing, soil excavation, and installation of permanent erosion and sediment control measures will be installed in the drainage paths up to 5 m above the ordinary high-water mark of Dolomite Lake and 18 m above the ordinary high-water mark of East Lake. There is a greater risk of erosion and sediment entering the lake when working near water.

The following general mitigation measures are intended to protect surface water quality during construction and maintenance work:

- Comply with all requirements outlined in the Letter of Advice to be issued from DFO.
- Comply with any conditions listed in the water licence once issued by GLWB.
- Implement the Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2022b).
- Clearly mark clearing limits adjacent to Dolomite Lake and East Lake and access routes to restrict removal and disturbance of vegetation, topsoil, and riparian area to the minimum necessary to construct the works.
- Operate equipment only from land, above the high-water mark and maintain and restrict access by equipment for work near the high-water mark to avoid soil compaction and disturbance and potential transport of sediment to watercourses.
- Excavated material, fill, debris, or other erodible materials must be stored at least 30 m from the watercourses, not within drainage paths and with appropriate perimeter controls (e.g., silt fence installed downslope minimum 2 m from the toe of slope) so that sediment run-off will not enter watercourses.
- Stockpiled material to have appropriate ESC measures (e.g., tackifier) if stored >30 days.
- Install sediment control measures around material stockpiles, where required, to prevent sediment transport to watercourses.
- Do not use material from the beds of waterbodies as borrow material.

- Install silt fences below the area of work above both lakes to prevent sediment or debris from entering both lakes.
- Salvage vegetation, such as willows for live stakes, for site restoration if vegetation below the outfalls is removed or damaged during construction.
- Retain large woody debris, where possible.
- A qualified environmental monitor (EM), to be retained by the contractor, is to be present for work within 30 m of both lakes.

2.4 Wind Erosion and Dust Control

Wind erosion occurs in areas that are not adequately protected from high-velocity winds blowing across the land. It can be minimized by forming a new less-erodible surface. Dust is commonly generated by sweeping and maintenance operations on paved surfaces or generated from vehicle traffic or wind on gravel surfaces and construction sites. The following methods are used to reduce wind erosion and control dust:

- Covering haul trucks and driving at low speeds to minimize fugitive dust;
- Spray water as necessary on transport routes to compact and weigh down the soil particles and reduce dust generation; and
- Restrict vehicle traffic entering and leaving the site to reduce sediment transport and mobilization to roadways.

2.5 Truck and Equipment Washing

Washing of trucks and equipment should be performed off site, where possible. If washing of equipment or trucks must be performed on site, it is to occur in a location that will prevent the entry of deleterious substances to water, that is at least 100 m from watercourses and approved by Associated.

2.6 Maintenance

The contractor will be required to monitor and maintain ESC measures during the construction period, as well as potential post-construction actions as a consequence of the works. Cleaning, adjustment, or repair of ESC measures shall be performed as required to achieve the desired objective. ESC measures should remain in place until the EM deems them no longer necessary and approved by Associated once the receiving site has been stabilized and there is no risk of sediment transport. All functional issues and corrective actions to be properly documented per Section 2.7.

2.7 Inspections and Monitoring

During construction works where sediment may be generated or in the case where soil is exposed and there is a risk of sediment transport due to a rain event or freshet, turbidity is to be monitored. For further details on inspections and monitoring requirements for water quality, refer to the Inuvik Airport Environmental Monitoring Plan (Associated 2023a).

The contractor is responsible to implement the following:

- Inspecting, documenting, and reporting erosion and sediment control measures (e.g., silt fencing) on at least a weekly basis, as well as within 24 hours in the event of a significant precipitation event (e.g., >12 mm precipitation within a 24 hr period or precipitation or snowmelt on wet or thawing soils).

- Verbally reporting all functional issues, environmental incidents, spills and/or sediment releases offsite (terrestrial and aquatic), regardless of size, immediately to the site supervisor or project manager, followed by a written report within 24 hrs.
- Increasing the frequency of erosion and sediment control measures inspections (Section 2.8), if required;
- Monitoring turbidity as per the requirements in Associated's Environmental Monitoring Plan (2023a), or as required in the water licence issued by GLWB. Turbidity data is to be recorded in the EM's daily field report (requirements outlined in Associated's environmental monitoring plan or in the Contactor's CEMP) and any exceedances must be immediately verbally reported to the site manager or project manager.
- Reporting the results of the monitoring and recommended improvements, if any, to the Project Engineer; and
- Evaluating the implementation of specified measures (e.g., silt fencing) and ensuring that installation is in accordance with the drawings and manufacturers' specifications.

2.8 Emergency Response

If ESC measures fail, the on-site EM, to be retained by the contractor, and the contractor will be informed immediately. The contractor should take immediate action to isolate the ESC incident (e.g., sediment plume or erosion site).

In the event of a large storm or ESC failure, the contractor must immediately control and respond to turbid water, discharges, and sediment transport. Appropriate action includes the following:

- **Hazard assessment:** Assess the source, extent, and quantity of the discharge.
- **Containment and elimination of the source:** Stop any construction works that might be contributing to the source and use additional ESC measures to contain sediment transport.
- **Cleanup:** When containment is complete, turbid water and sediment levels should be verified to be within acceptable levels (Associated 2023a) or allowed to settle out before works are resumed.

The response framework for contingency planning is presented in Table 2-1. This approach represents passive adaptive management, or the application of best practices.

Table 2-1 Response Framework for Erosion and Sediment Control Measures

Threshold	Description	Action Level	Tasks
ESC measures require maintenance, but there is no risk of failure	- Sediment is being contained by proposed measures, but measures are no longer functioning as required - Signs of minor sedimentation/turbidity are present outside the work area, but no risk of failure exists	Low	- Pause works and inspect ESC measures and materials for deficiencies. - Replace/repair silt fencing or other erosion and sediment control measures as necessary before resuming works. - Continue with scheduled inspections and monitoring.
ESC measures require maintenance, and there is risk of failure	- Sediment is being contained by proposed measures, but measures are no longer functioning as required, and risk of failure due to accumulation exists - Signs of sedimentation/turbidity are present outside working areas, and risk of failure exists	Medium	- Notify the project supervisor or delegate. - Pause construction works and replace/repair ESC measures as necessary before resuming works. - Investigate turbidity levels outside the work area/storage sites. - Increase scheduled inspections and monitoring.
ESC measures have failed	Sediment is no longer being contained and control measures have failed	High	- Stop construction works. - Notify the project supervisor or delegate. - Follow spill response protocols as per the spill contingency plan, if required. - Implement Secondary ESC measures to contain sediment from travelling off site, if required. - Increase frequency of inspections and monitoring until turbidity reaches acceptable levels before resuming works.

2.9 Materials

The contractor is responsible for providing and properly storing erosion and sediment control materials on site, such as silt fencing, and emergency response equipment such as appropriately sized spare pumps.

2.10 Site Restoration

Upon construction completion, disturbed areas will be seeded with a native vegetation mix that is approved by Associated. Soil bioengineering techniques may be used as an additional permanent ESC measure.

3 AIRPORT OPERATIONS EROSION AND SEDIMENT CONTROL MEASURES

The following erosion and sediment control measures will be implemented in the design of the drainage ditches that transport runoff from the airport after construction is completed:

- Ditches will be armoured with screened rock over non-woven geotextile in sections where water velocity will be greater than 1 metre per second (m/s);
- Gabion basket check dams, which are rocks typically encased in wire mesh, will be installed at intervals where water velocity will be greater than 2 m/s;
- A screened rock apron will be installed around the culverts;
- Gabion baskets will be installed at the end of the two new outfall locations, approximately 5 m above the ordinary high-water mark of Dolomite Lake and 18 m above the ordinary high-water mark of East Lake; and
- Ditches will be hydroseeded with a native grass mix in the ditch sections where screened rock is not required.

The design drawings for the gabion basket check dams, screened rock apron around culverts, and an example of the ditches armoured with screened rock are provided in Appendix A.

3.1 Airport Operations Responsibilities

After construction of the drainage ditches is complete, erosion and sediment control from airport operations will become the responsibility of GNWT-INF as well as complying with the requirements of the water licence issued by GLWB. If contractors are retained by GNWT-INF to perform maintenance work on the drainage ditches after construction, the contractor shall follow the ESC measures in Sections 2 and 3.

3.2 Airport Run-off and Maintenance of Drainage Ditches Erosion and Sediment Control Measures

The incorporation of erosion and sediment control measures in the ditch design will help minimize the transport of sediment to watercourses during run-off. Sediment transport from airport surface run-off and upland areas will likely be reduced once vegetation establishes in the sections of the drainage ditches that will be hydroseeded. However, slumping of the ditches may occur due to newly exposed permafrost, especially within 2 to 7 years after construction, which has the potential for erosion and sediment to be transported in runoff if not maintained (Associated 2023b).

Large amounts of sediment are not anticipated to be generated from airside surfaces because all vehicles travelling airside must be free from loose foreign object debris such as rocks, mud, dirt, snow, and ice. Erosion and sediment transport are possible from areas with exposed soil and ditches that have slumped and have not been regularly maintained. The airport will monitor and maintain ditches as necessary. Maintenance of the drainage ditches may require removing snow, vegetation, debris, and sediment build-up from culverts and ditches, repairing culverts (non-fish bearing), regrading ditches, and repairing ditches with rock, riprap, or vegetation on an as-needed basis.

The following general erosion and sediment control requirements will be followed by the airport or contractor during regular ditch maintenance activities and operation of the airport:

- Stockpile soil or erodible materials away from drainage ditches in a manner where sediment will not enter watercourses.

- Monitor drainage ditches regularly and complete maintenance as required to maintain proper function of the drainage ditches.
- Schedule removal of vegetation, debris, and sediment build-up from culverts and ditches during conditions when no water is flowing through the drainage system, where possible. If not possible, remove built-up materials slowly to prevent flooding and erosion downstream and minimize the release of sediment in runoff.
- Use existing access roads and limit disturbance to that necessary to complete maintenance.
- Restore disturbed areas by hydroseeding with a native seed mix.
- Properly remove snow from the drainage ditches around the airport and store it away from the drainage ditches to minimize culvert blockages during freshet.

3.3 Truck and Equipment Washing

Airport equipment should be washed and maintained in the designated maintenance area at the airport.

3.4 Inspections and Monitoring

After construction of the drainage ditches is complete, airport personnel shall inspect the condition of the ditches as per the draft drainage design and stormwater management report (Associated 2023b) before freshet, after large storm events, and prior to snowfall to ensure that they are functioning correctly. The culverts and ditches should be inspected for excessive material build-up that could cause blockages and standing water and for the condition of the ditches such as slumping and bare areas that could cause erosion and sediment transport. Airport personnel shall perform regular maintenance of the ditches to restore proper function and mitigate erosion potential and sediment transport from the ditches.

CLOSURE

This report was prepared for the Government of Northwest Territories – Department of Infrastructure to guide erosion and sediment control during construction of the infrastructure upgrades and runway extension at the Inuvik Airport, and for operations of the Inuvik Airport after construction is completed.

The services provided by Associated Engineering (B.C.) Ltd. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,

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APPENDIX A – DRAWINGS FOR DRAINAGE DESIGN EROSION AND SEDIMENT CONTROL

IF NOT 50 mm ADJUST SCALES

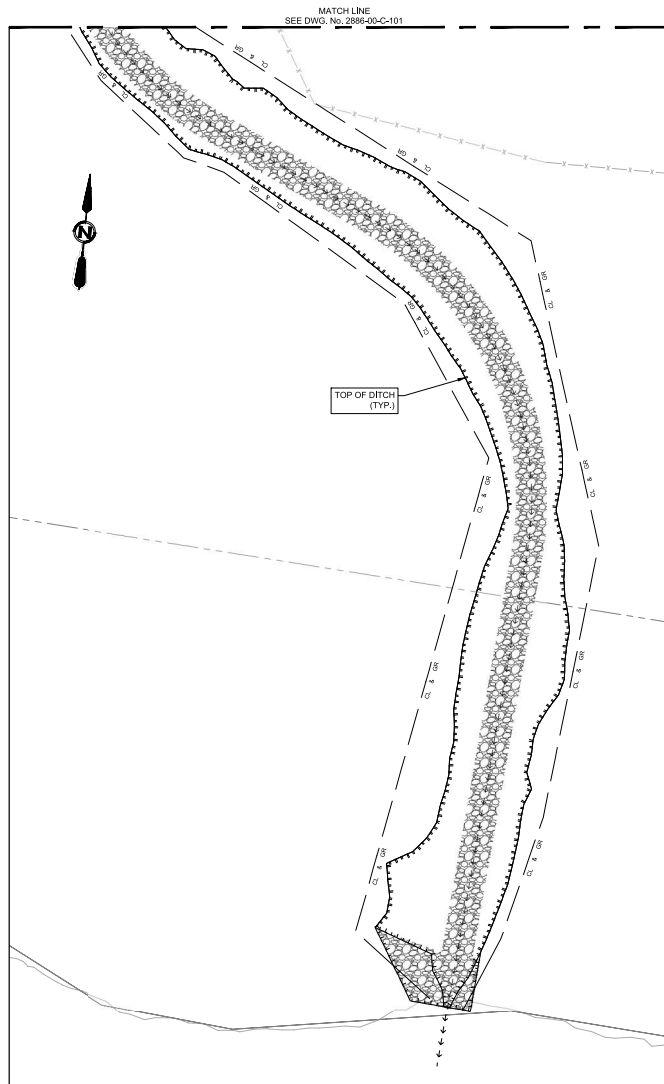
SCALE(S) SHOWN ARE INTENDED FOR A850 (22X34) SIZE DRAWINGS, TABLOID (11X17) SIZE DRAWINGS ARE 1/2 OF SCALE(S) SHOWN UNLESS NOTED OTHERWISE



SEE DWG. No. 2886-00-C-101

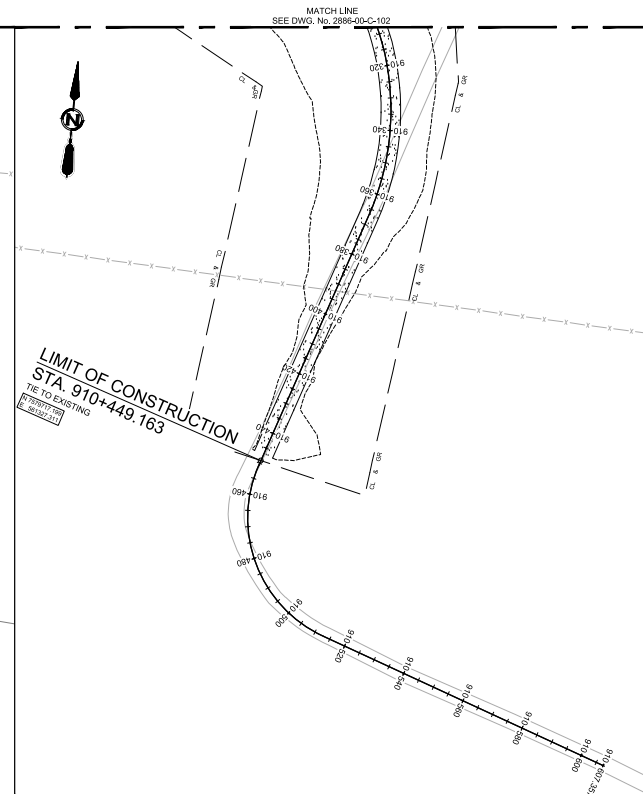
LEGEND

- SERVICE ROAD - GRANULAR SURFACE
- ARMORED DITCH WITH 250mm SCREENED ROCKS
- ARMORED DITCH WITH 150mm SCREENED ROCKS
- AIRSIDE SECURITY GATES
- NEW CULVERT AND SCREEN ROCK APRON
- AIRSIDE SECURITY FENCING
- CLEARING AND TREE REMOVAL
- REMOVE EXISTING FENCE
- NEW DITCH
- FILL/CUT SLOPE TOES



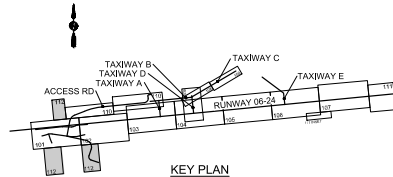
TOP OF DITCH (TYP.)

MATCH LINE
SEE DWG. No. 2886-00-C-101



MATCH LINE
SEE DWG. No. 2886-00-C-102

LIMIT OF CONSTRUCTION
STA. 910+449.163
TIE TO EXISTING
STATIONING
AS SHOWN



KEY PLAN

GOVERNMENT OF
NORTHWEST TERRITORIES

INUVIK AIRPORT
CIVIL INFRASTRUCTURE IMPROVEMENTS
AND RUNWAY 06-24 EXTENSION
2020-2886-00

SCALE: 1:750

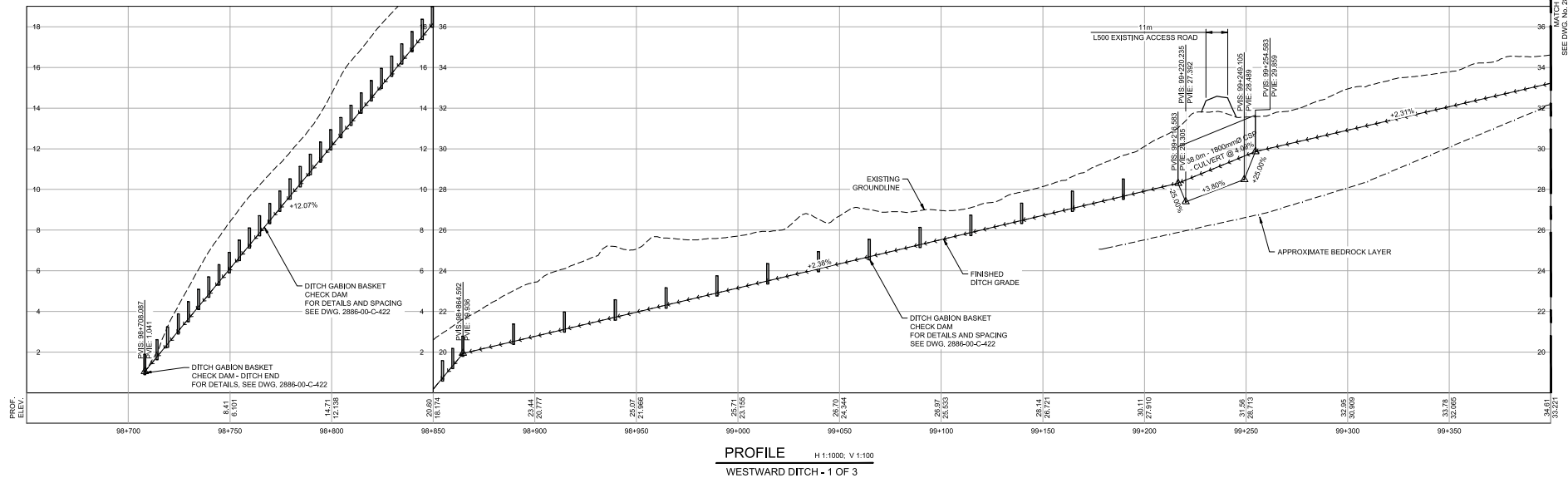
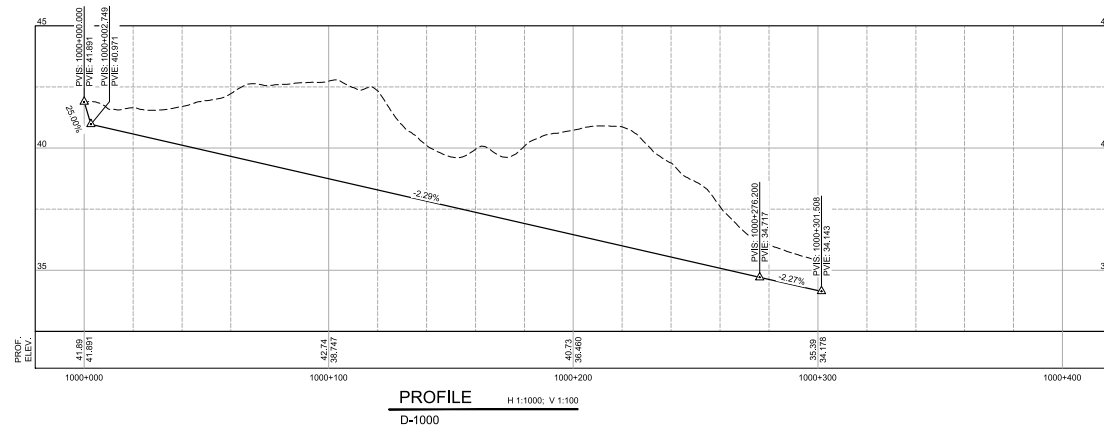
REV	DATE	DESIGN	DRAWN	DESCRIPTION
0	2020-01-27	S. OLING	IS. SALOMON	ISSUED FOR TENDER WPSH



PLAN DRAINAGE AND ACCESS ROAD EXTENSION		
DRAWING	REVISION	SHEET
2886-00-C-112	0	17

PLOT DATE: 2020-04-08 4:23:02 PM
DRAWN BY: S. OLING
CHECKED BY: IS. SALOMON
PLOT FILE: C:\2020-2886-00\Drawings\2886-00-C-112.dwg





PLOT DATE: 10/02/2023 2:11:55 PM
 DRAWN BY: MOHAMMED
 DRAWN PATH: C:\2020-2024\Drawings\2886-00-C-22.dwg



GOVERNMENT OF
 NORTHWEST TERRITORIES
 INUVIK AIRPORT
 CIVIL INFRASTRUCTURE IMPROVEMENTS
 AND RUNWAY 06-24 EXTENSION
 2020-2886-00

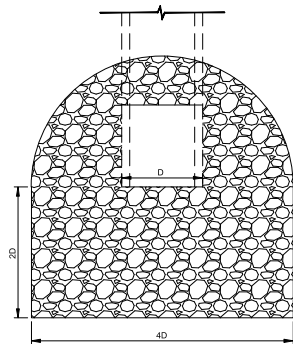
1	2023-01-27	S. CHUNG	MSALOMON	ISSUED FOR TENDER WP134
0	2021-07-08	S. CHUNG	H. YIN	ISSUED FOR TENDER WP134
REV	DATE	DESIGN	DRAWN	DESCRIPTION

SCALE: H 1:1000; V 1:100

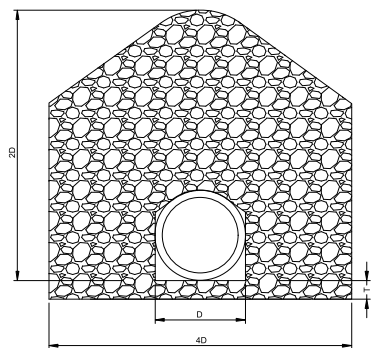
PROFILE
 DITCH - SHEET 2 OF 3

DRAWING	REVISION	SHEET
2886-00-C-221	1	31

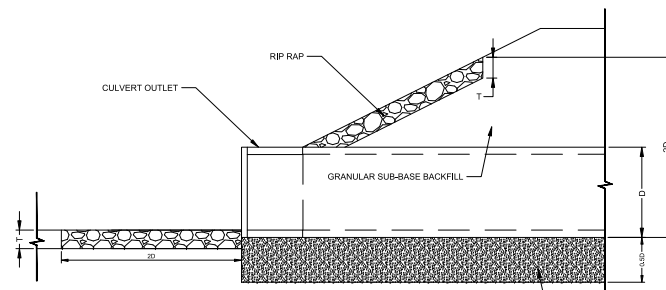




1 DETAIL N.T.S.
INLET/OUTLET RIP RAP APRON PLAN



2 DETAIL N.T.S.
INLET/OUTLET RIP RAP APRON SECTION



3 SECTION N.T.S.
INLET/OUTLET RIP RAP APRON SECTION

NOTES:

1. RIP RAP TO BE HAND PLACED - 250mm MIN. DIA.
2. RIP RAP SHALL BE HAND PLACED ROCK AS SPECIFIED BY THE ENGINEER.
3. 300mm THICKNESS (T) (D SMALLER THAN 1400mm)
600mm THICKNESS (T) (D = 1400 - 2000mm)
4. RIPRAP TO BE UNDERLAIN BY NON-WOVEN GEOTEXTILE
5. RIPRAP GRADATION AS PER SPECIFICATIONS

NOTE: ALL DIMENSIONS SHOWN IN mm UNLESS OTHERWISE NOTED.

PLOT DATE: 2020-04-13 9:38:30 AM
DRAWN BY: S. CHUNG
CHECKED BY: H. YIN
DRAWN PATH: C:\2020-2021\Drawings\2886-00-C-421_2.dwg



Platinum member

GOVERNMENT OF
NORTHWEST TERRITORIES

INUVIK AIRPORT
CIVIL INFRASTRUCTURE IMPROVEMENTS
AND RUNWAY 06-24 EXTENSION
2020-2886-00

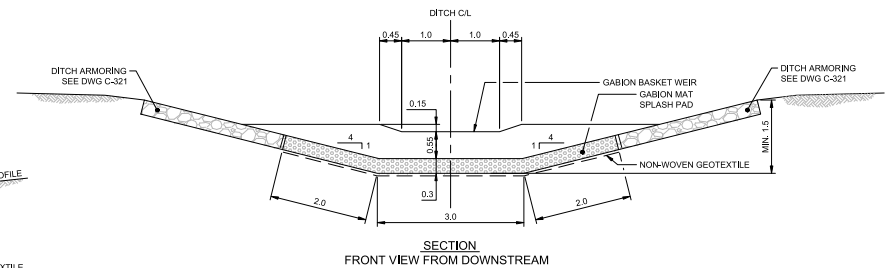
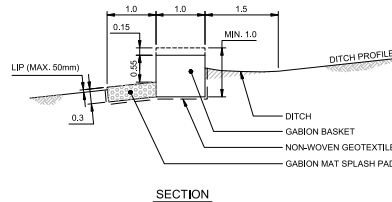
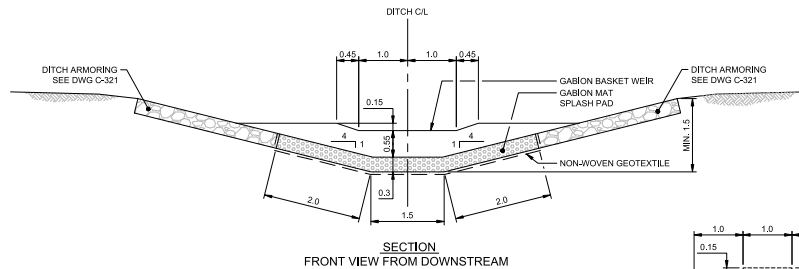
SCALE: AS SHOWN

REV	DATE	DESIGN	DRAWN	DESCRIPTION
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0	2021-07-08	S. CHUNG	H. YIN	ISSUED FOR TENDER WPS14

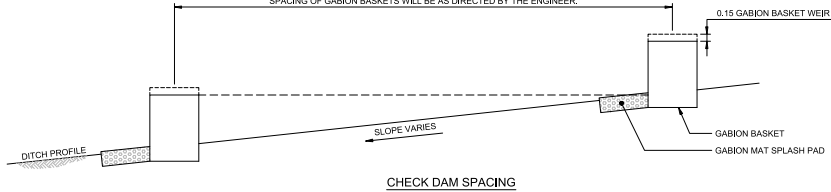


DRAINAGE DETAILS
SHEET 1 OF 2

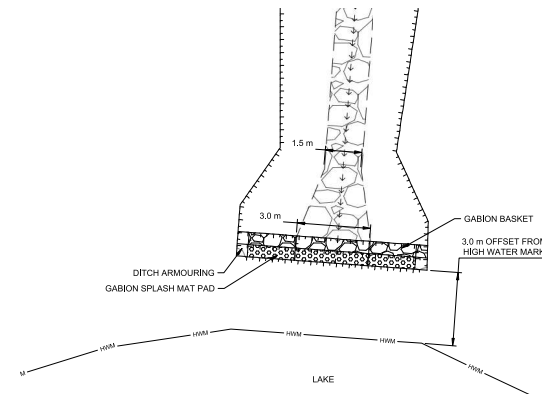
DRAWING	REVISION	SHEET
2886-00-C-421	1	52



GABION BASKET SPACING WILL VARY DEPENDING ON THE SLOPE OF THE DITCH. GABION BASKETS ARE TO BE PLACED SUCH THAT THE DOWNSTREAM GABION BASKET WEIR IS AT THE EQUIVALENT ELEVATION TO THE BOTTOM OF THE UPSTREAM BASKET. SPACING OF GABION BASKETS WILL BE AS DIRECTED BY THE ENGINEER.



1 DETAIL
DITCH GABION BASKET CHECK DAM & GABION SPLASH MAT PAD 1:50



2 DETAIL
DITCH GABION BASKET CHECK DAM - DITCH END 1:100

NOTE: ALL DIMENSIONS SHOWN IN METRES UNLESS OTHERWISE NOTED.