



**Celina Project, Minnesota, USA**

**EXPLORATION DRILL PLAN  
PROJECT: CELINA  
PLAN REFERENCE: 16CEPL001  
VERSION: 1  
15 August 2016**

Prepared By

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This Revision: 21/06/2019

## 1 Drill plan objectives and general overview

Drilling on the Celina Project should be undertaken in order to achieve the following;

1. Establish up-ice background values for Au and Au pathfinder elements in basal till.
2. Evaluate the bedrock composition of the Celina Project by comparison of up-ice and down-ice basal till geochemical and pebble lithologic compositions.
3. Test basal till Au and Au pathfinder element concentrations immediate down-ice of the major structural break crossing the property.
4. Collect bedrock samples for geochemical, mineralogical, and physical properties testing to constrain geological and geophysical interpretation.

A rotasonic drilling program, totalling 750m (25 rotasonic holes), has been proposed on the Celina Project. Holes will be drilled at an inclination of -90°. Holes will be drilled to bedrock to sample Quaternary basal till and the uppermost bedrock. The depth of the holes depends on the depth of Quaternary glacial sediment and pre-Quaternary saprolite overlying sound bedrock, estimated to average 30 m. The details of the planned holes are summarised in Table 1 below.

**Table 1: Drilling details**

Drill Type, Diameter	Rotasonic
Survey	n/a
Drill Pattern	
Drill Rig(s)	
Shift Pattern	
Number of Holes	25
Total Metres	<b>750 m</b>
Average Metres per Hole	30 m
Dip (if constant)	-90
Azimuth (if constant)	0° (TN)
Grid Reference for Azimuth	UTM15N, WGS84.
Expected Total Samples	~125 (Depending on final depths)
Expected QA/QC Samples	~13
Assay Protocol	Screen to -63 micron, 50g fire assay, 4-acid digest + multielement assay. Second split collected for HMC, INAA Au assay, and mineralogy. Pebbles (>2 mm) archived for counting and analysis.

**Table 2: Special Instruction:**

Special Instruction	Responsibility
Safety and environmental considerations	Project geologists (Larson, Fix) and all personnel at site.
Quality and QAQC protocol	Field geologists, Project geologist and driller
Safe driving and toolbox meetings	Geologists, rig crews
Permits to Clear	Project geologist, Exploration Manager to liaison with Environmental department

### 1.1 Target Depth Parameters

This program is an initial evaluation of the Au prospectively of the Celina Project. Hole spacing is designed to ideally result in at least one anomalous sample with respect to Au and Au pathfinders for a 1 km mineralized zone. Holes are laid out in two lines, oriented approximately perpendicular to the ice flow direction. Basal till is the primary sampling media. Short (~3 m) samples of bedrock will constrain property-scale geological and geophysical interpretation.

### 1.2 Sampling and Assay Protocol

### 1.2.1 Normal assay samples

Basal till will be sampled at 1 metre intervals and be split using a putty knife or diamond saw, depending on hardness. Additional samples may be collected from tills higher in the Quaternary section. Bedrock samples will be split using a diamond saw. A minimum ¼ split of the Quaternary and bedrock samples must be preserved and archived.

### 1.2.2 QA/QC Parameters

Quality assurance and control will be done using the addition of field Duplicates, Blanks and Standards in the normal ratio (11.3%) used as per SAG Procedure Document. This exercise will be done at the core shack.

## 2 Drill Hole Details

*Table 3: Collar attributes of the planned holes at Celina.*

PLANID	XCOLLAR	YCOLLAR	BRG	DIP	EOH	Line
16rs-01	484354	5307575	0	90	30	S
16rs-02	486235	5306245	0	90	30	S
16rs-03	487284	5306444	0	90	30	S
16rs-04	489105	5305588	0	90	30	S
16rs-05	491934	5304794	0	90	30	S
16rs-06	488214	5306752	0	90	30	S
16rs-07	485340	5308060	0	90	30	S
16rs-08	488328	5307532	0	90	30	Structure
16rs-09	489135	5308074	0	90	30	Structure
16rs-10	489673	5308632	0	90	30	Structure
16rs-11	490595	5309216	0	90	30	N
16rs-12	491449	5309668	0	90	30	N
16rs-13	492345	5309534	0	90	30	N
16rs-14	489928	5307373	0	90	30	Structure
16rs-16	486426	5310639	0	90	30	N
16rs-17	489972	5309684	0	90	30	N
16rs-18	489118	5309907	0	90	30	N
16rs-19	493103	5309342	0	90	30	N
16rs-20	487945	5310277	0	90	30	N
16rs-21	492328	5312034	0	90	30	N
16rs-22	485604	5311586	0	90	30	N
16rs-23	486368	5304743	0	90	30	S
16rs-24	491042	5305149	0	90	30	S
16rs-25	490756	5305914	0	90	30	S
16rs-26	493039	5304595	0	90	30	S

## 3 Geological Setting and Exploration Overview

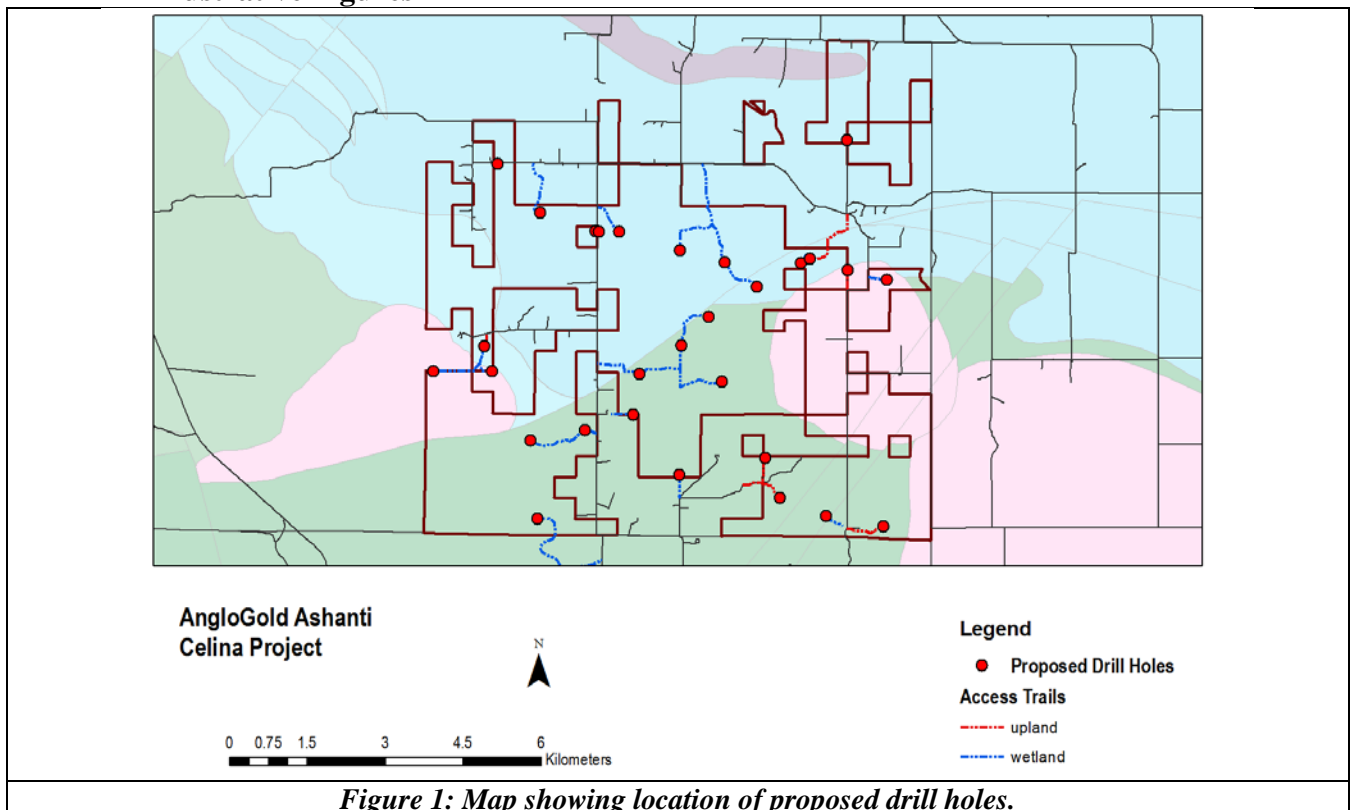
The Celina Project is located in Township 63 North, Range 22 West, Koochiching County, Minnesota. Bedrock consists predominantly of supracrustal rocks (metasediments and metavolcanics) and associated hypabyssal intrusions of the Neoproterozoic Wawa Subprovince. The tenement is crossed by an enigmatic major transpressional fault, separating predominantly metasedimentary rocks to the north from metavolcanic and associated hypabyssal intrusions to

the south. Interpretation of 300 m spaced aeromagnetic data suggests a favourable structural and lithologic environment for hosting Au mineralization.

Previous mineral exploration activity on the tenement is negligible, consisting of a single reconnaissance rotasonic drill hole and a handful of RC holes, both drilled in Quaternary sediment. Lack of outcrop exposure and a thick covering of glaciolacustrine sediment have hampered application of conventional exploration techniques.

The primary goal of the initial phase of this exploration program is therefore establishing the Au prospectivity of bedrock on the property. Basal till provides an excellent sampling media to accomplish this task. Basal till is theoretically a mixture of sediment eroded from a wedge-shaped area extending up-ice of the sampling point; a single sample therefore may represent be used to evaluate a significantly larger area of bedrock.

#### 4 Illustrative Figures



*Figure 1: Map showing location of proposed drill holes.*

#### 5 Access and other Logistics

Brushing work is required for access trails.  
Proposed Start date: **October 2016.**