



C.C. Tatham & Associates Ltd.

Consulting Engineers

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June 16, 2015

via courier
CCTA File 114239

Sam Greenwood

Greenwood Aggregates
205467 County Road 109
Amaranth, ON L9W 0V1

**Re: Violet Hill Pit – Part Lots 30, 31 & 32, Concession 4 E.H.S., Town of Mono
Erosion Hazards Study**

Dear Sam:

C.C. Tatham & Associates Ltd. (CCTA) has been retained by Greenwood Construction to establish the erosion hazard limit associated with the watercourses and steep slopes on the proposed Violet Hill Pit property. A figure identifying the site and the study area is enclosed for reference. The purpose of the analysis is to confirm that the proposed Violet Hill Pit production envelope (extraction limit) is located outside the erosion hazard limit. As such, this erosion hazard assessment has been completed to definitively establish the erosion hazard limit on-site to ensure a proposal is brought forward that can be supported by the Ministry of Natural Resources and Forestry (MNR) and Nottawasaga Valley Conservation Authority (NVCA).

To establish the erosion hazard limit for the site, we first reviewed a topographic survey of the site to determine the watercourse locations and establish the embankment slope profiles. The erosion hazard limit was then defined in accordance with Section 3.1 of the Provincial Policy Statement and specifically the MNR Technical Guide for River & Stream Systems: Erosion Hazard Limit. The watercourses are confined river systems and the erosion hazard limit for the watercourses is defined as the sum of the toe erosion allowance, stable slope allowance and erosion access allowance. For the steep slopes with no watercourses, the erosion hazard limit is defined as the sum of the stable slope allowance and the erosion access allowance.

Borehole logs for the site indicate that the site soils are primarily sand. Given the site soils, a conservative toe erosion allowance of 15.0 m was applied. In the absence of a geotechnical report, the stable slope allowance for this assessment has been defined as a horizontal distance equal to three (3) times the height of slope measured farther landward from the toe erosion allowance. Similarly, a 6 m erosion access allowance has been used at the top of slope for this assessment as recommended in the Technical Guide. For many of the cross-sections, the existing slope was shallower than the stable slope and the brow of slope was beyond the stable slope allowance. To be

conservative, the 6 m erosion access allowance was added to the brow of the existing stable slope. Delineation of the erosion hazard limit is illustrated on the Erosion Hazard Plans (Drawings EH-1 to EH-3) enclosed.

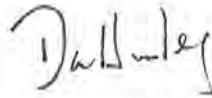
The results of this assessment reveal that the proposed production envelope is outside the erosion hazard limit. As the production envelope can extend to but not encroach within the erosion hazard limit, the production envelopment may be revised to match the erosion hazard limit if desirable.

We trust that this Erosion Hazard Assessment and the enclosed Erosion Hazard Plans (Drawings EH-1 to EH-3) is sufficient for NVCA review and approval. In the meantime, if you have questions or concerns, please do not hesitate to contact the undersigned.

Yours truly,
C.C. Tatham & Associates Ltd.



Daniel Twigger, B.Sc.Eng., P.Eng.
Intermediate Engineer, Project Manager
DRT:rlh



Dan Hurley, B.A.Sc., P. Eng. LEED AP
Vice President, Manager – Water Resources Engineering

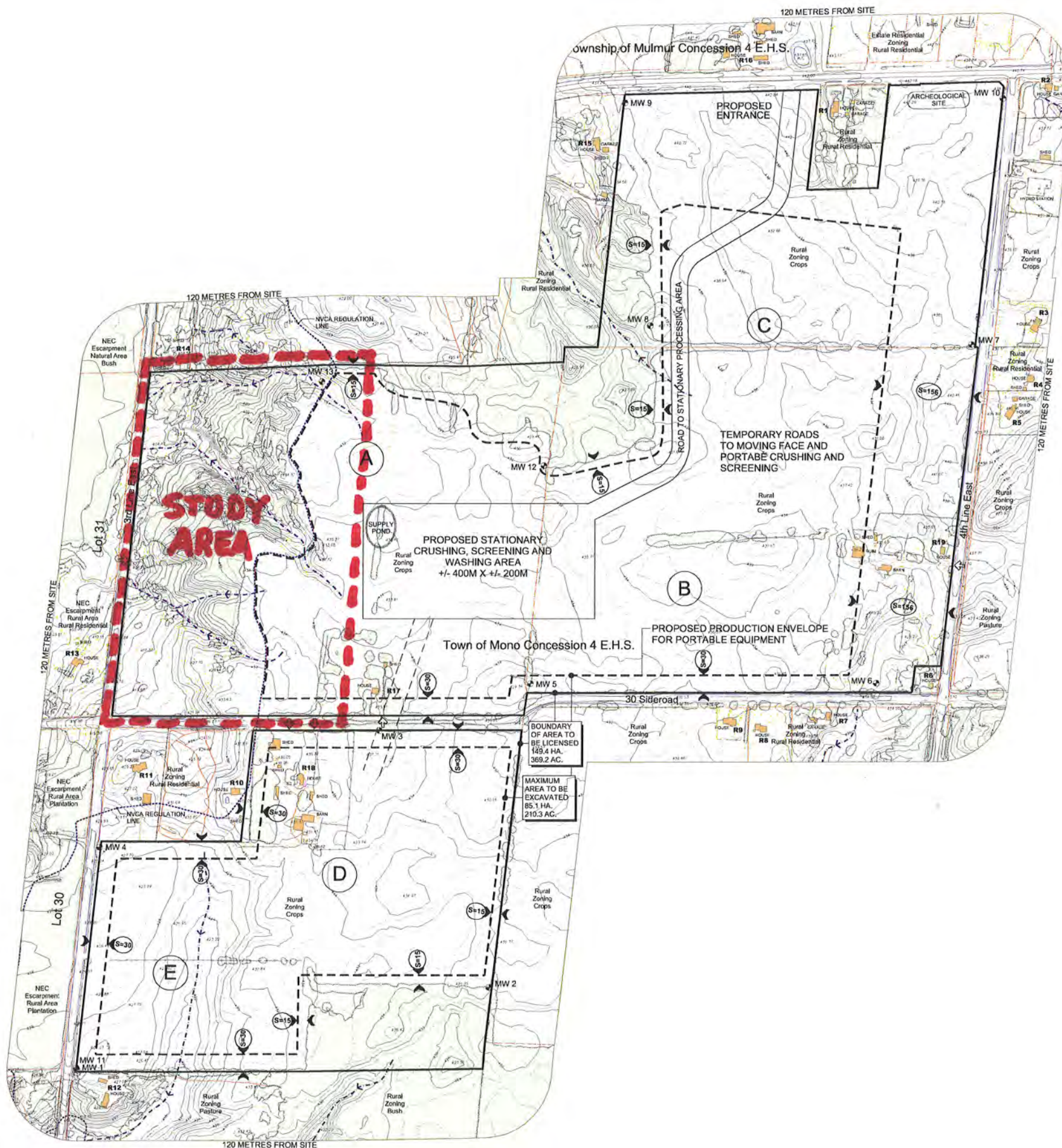
Copy: Craig Laing, C.D. Laing Aggregate Management Services (via courier)

I:\2014 Projects\114239 - Violet Hill, Mono Twp\Documents\L001 - Erosion Hazard Assessment - Violet Hill Pit.docx



VIOLET HILL PIT
Part Lots 30, 31 & 32, Conc. 4 E.H.S.
Town of Mono
Dufferin County

OPERATIONAL CONCEPT



Legend

- Boundary of Area to be Licensed
- Area to be Excavated
- Elevation, 1M Contour
- Elevation, Spot
- Parcel Fabric
- Surface Drainage
- Setbacks, Metres
- Existing Tree Cover
- Existing Fences
- Building/Structure Use and Receptor Number
- Monitoring Well MW1-MW13 Location and Number
- Existing Entrance/Exit
- Cross Sections Location and Identifier

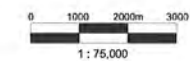
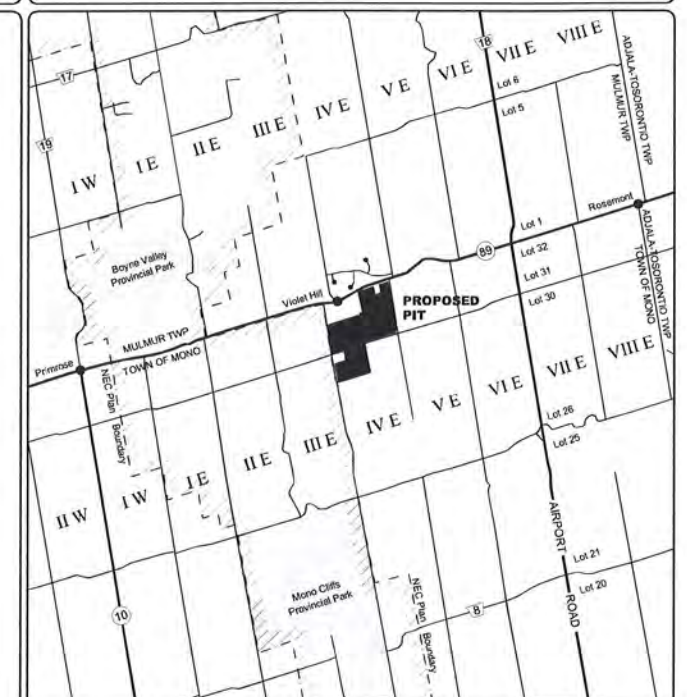
PLAN DETAILS YET TO BE ADDED

Notes

1. TOPOGRAPHIC BASE MAPPING DERIVED FROM 2010 AIRPHOTO AS PREPARED BY FIRST BASE SOLUTIONS INC. CONTOUR INTERVAL IS 1M. MAPPING SUPPLEMENTED WITH ADDITIONAL INFORMATION FROM LOCAL PLANNING DOCUMENTS.
2. AREAS A - E ARE SHOWN AS A LOCATION REFERENCE AND DO NOT NECESSARILY CORRESPOND TO EXCAVATION SEQUENCE.

References

1. SURVEY OF MONITORING WELL LOCATIONS BY VAN HARTEN SURVEYING AND ENGINEERING



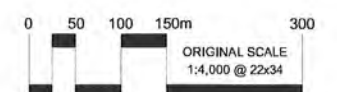
Key Map







DRAWN: J.A.R.
APPROVED: S.G.
FILE: July 2014 Pebln.mxd.dwg
PLOTTED: 15 Jan, 2015

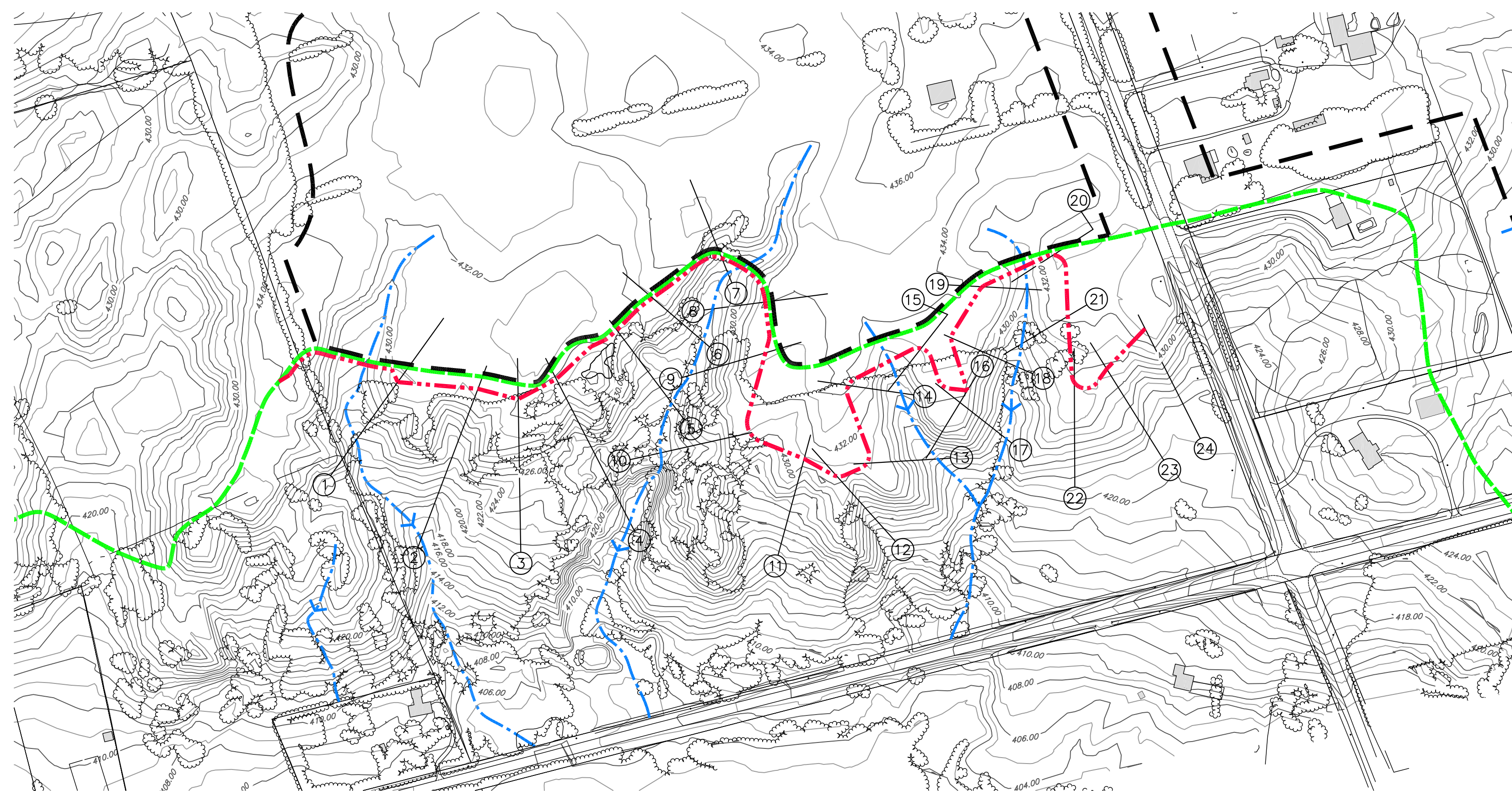
AMENDMENT NO.

No.	DATE	DESCRIPTION	APP'D
Amendments			

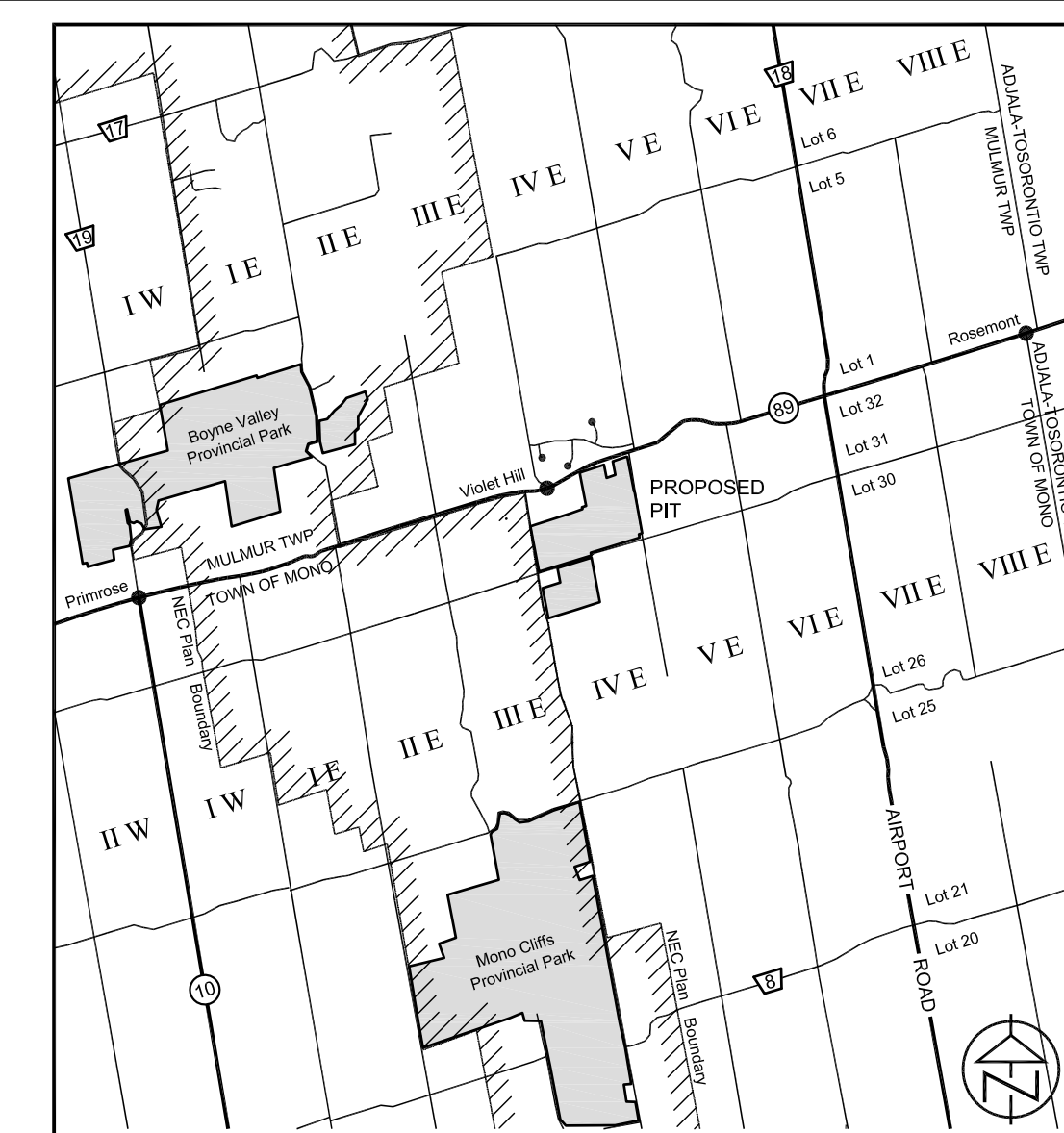


LEGEND:

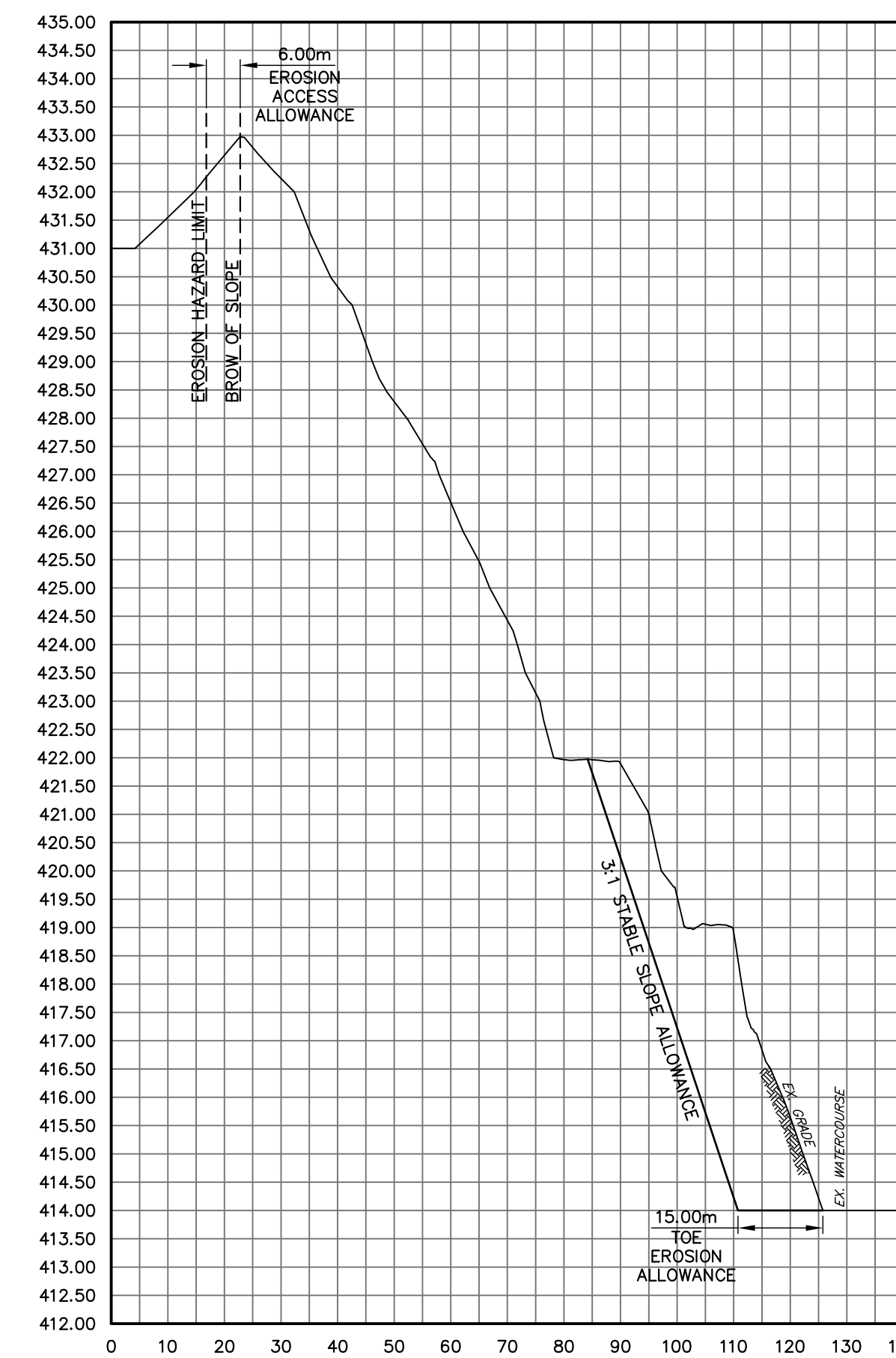
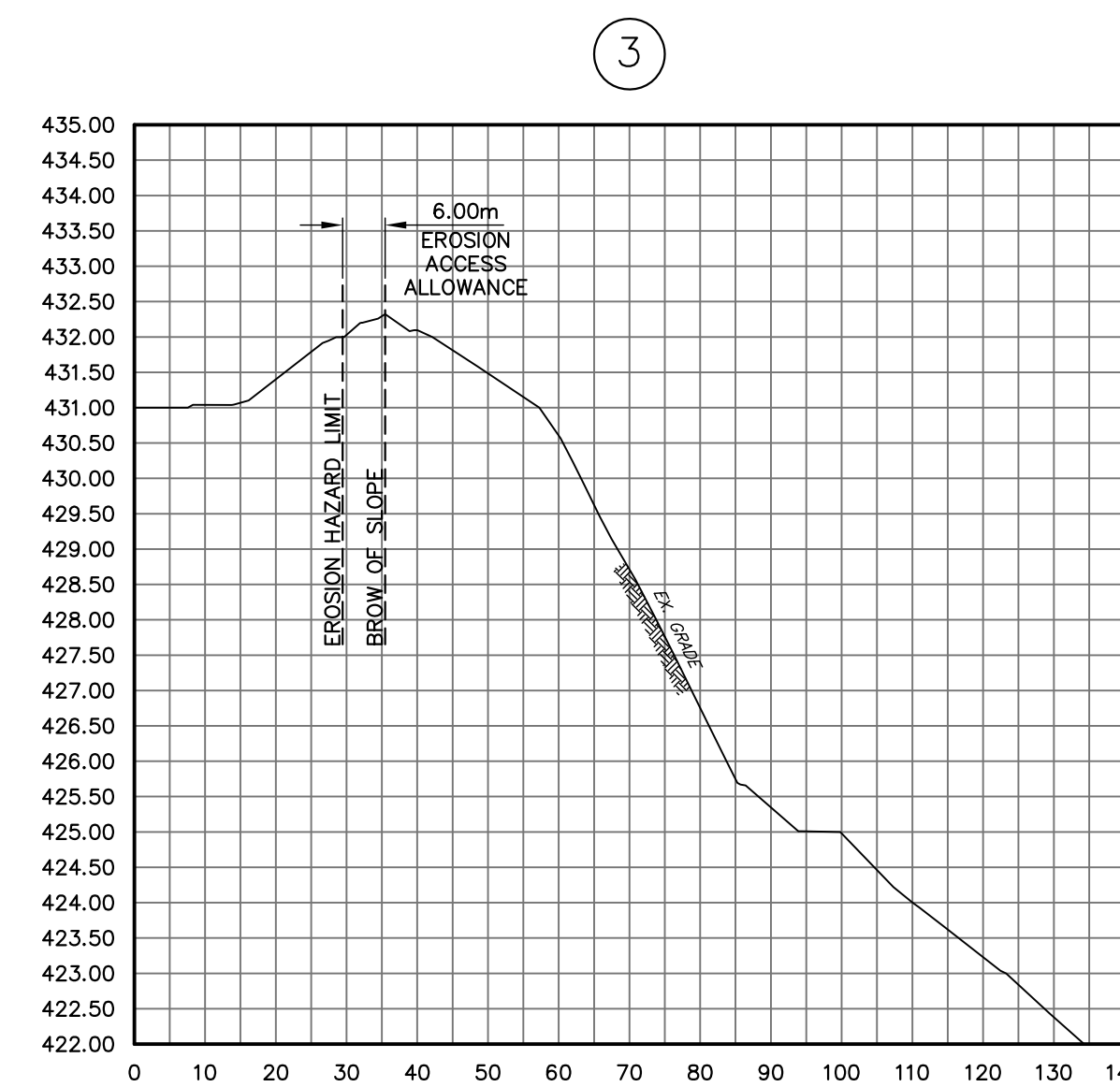
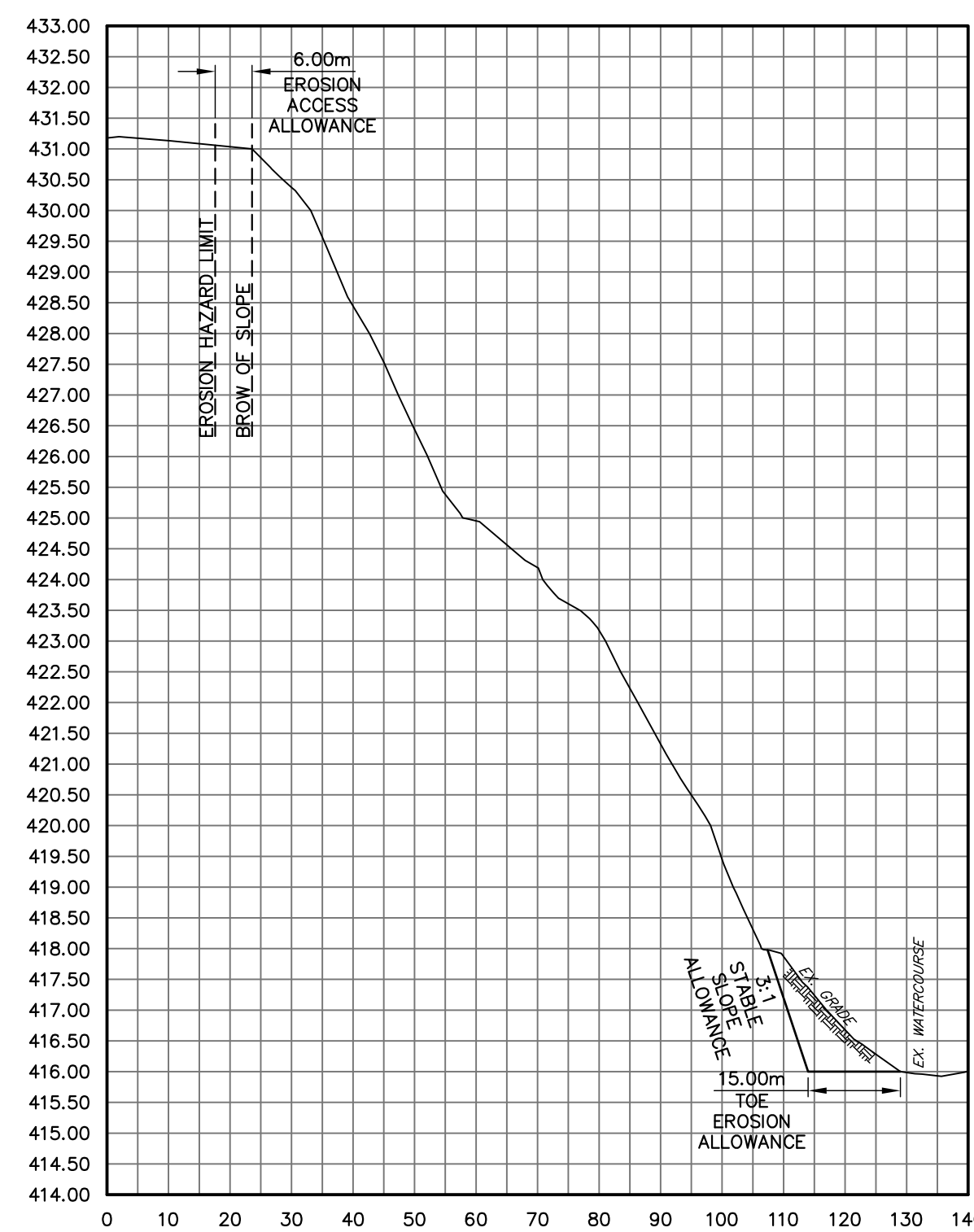
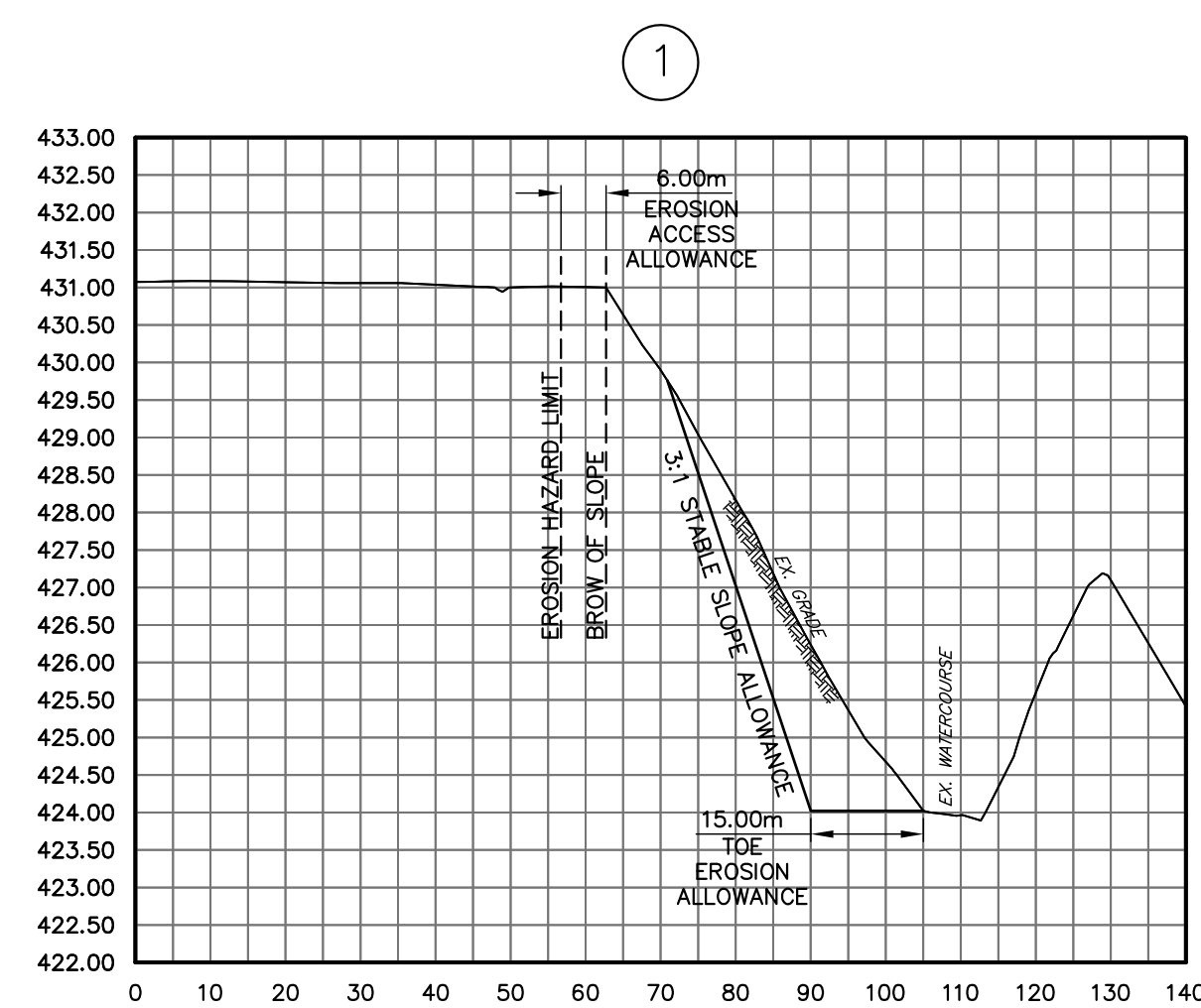
-  NVCA REGULATION LINE
-  LIMIT OF EXTRACTION
-  EROSION HAZARD LIMIT
-  WATERCOURSE



PLAN VIEW
SCALE: 1:2500



KEY PLAN
N.T.S.



CROSS SECTIONS
SCALE: HOR. 1:1000 VER. 1:100

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NO.	REVISIONS	DATE	INITIAL

APPROVED



VIOLET HILL PIT
EROSION HAZARD ASSESSMENT

HAZARD EROSION PLAN

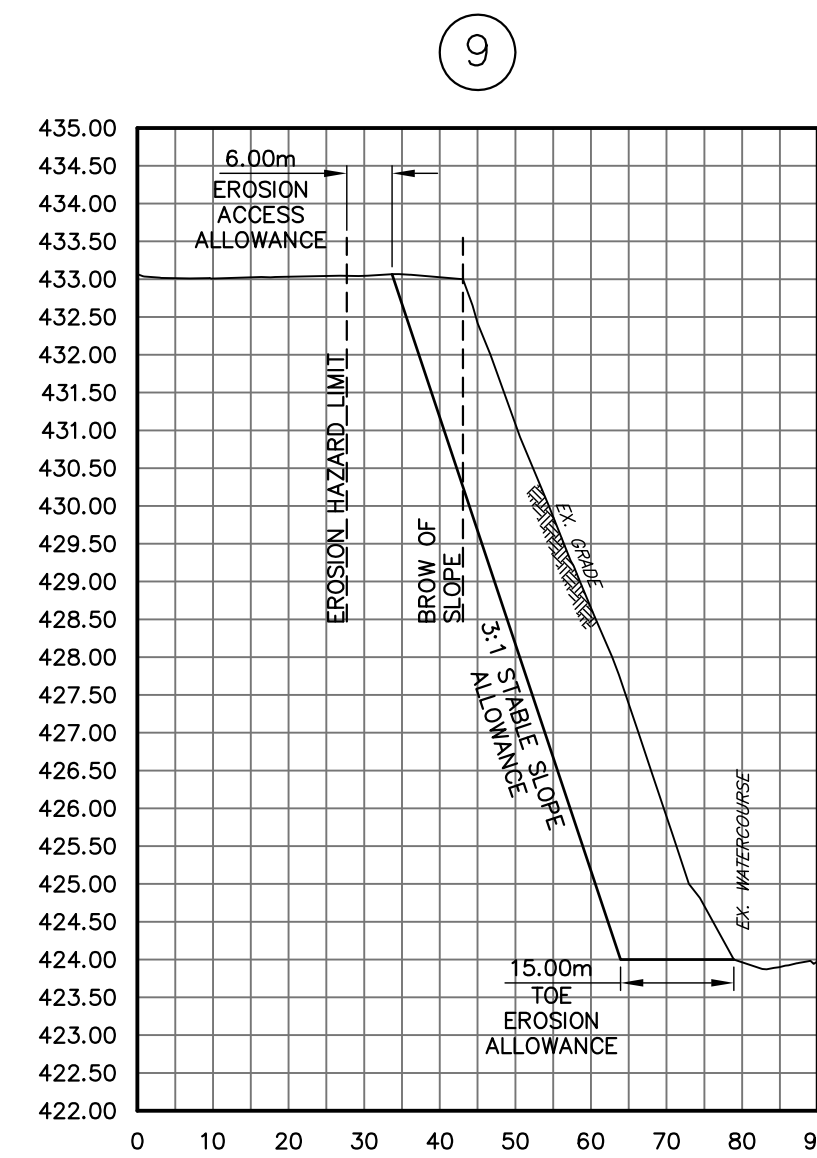
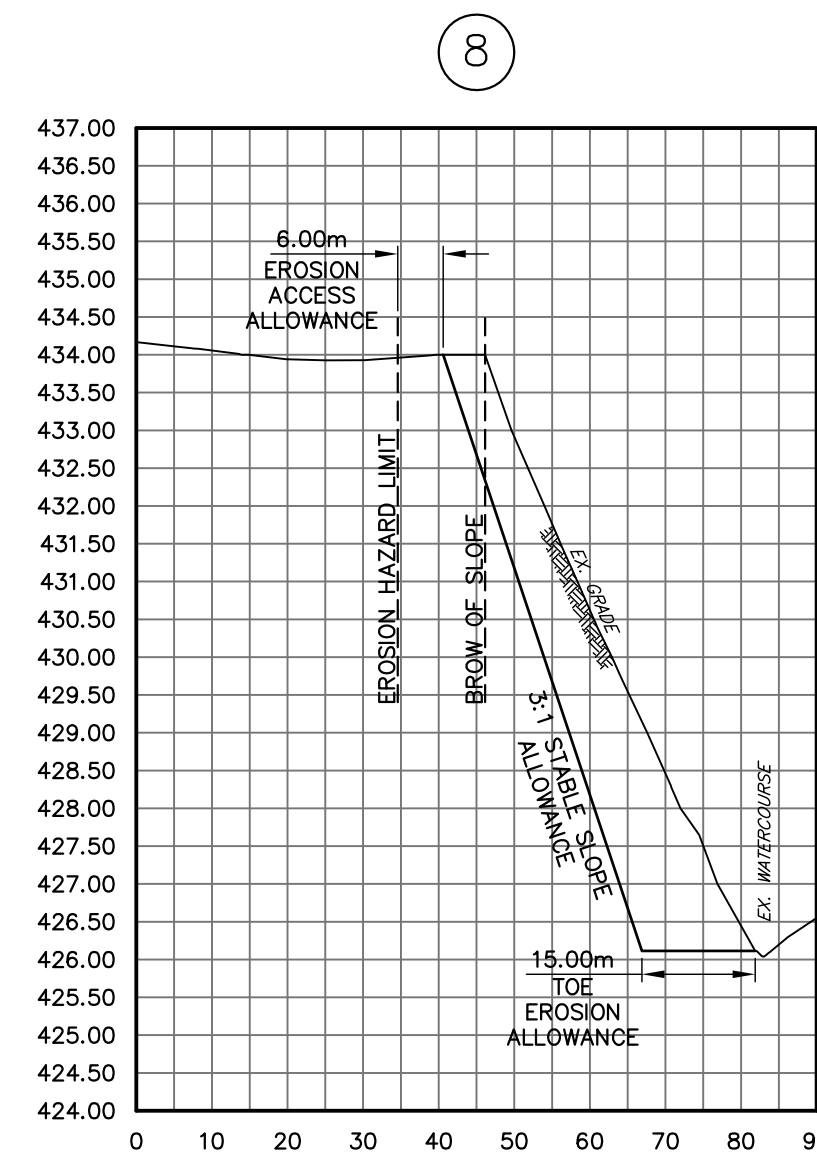
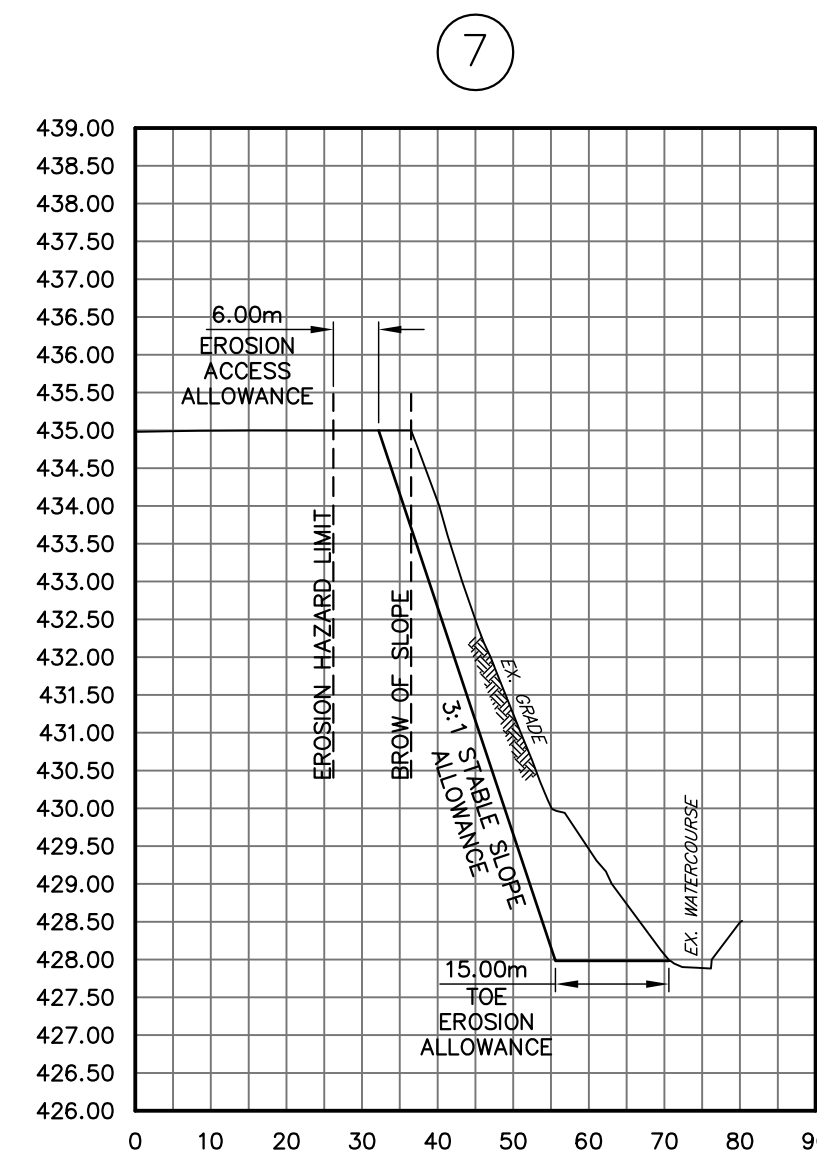
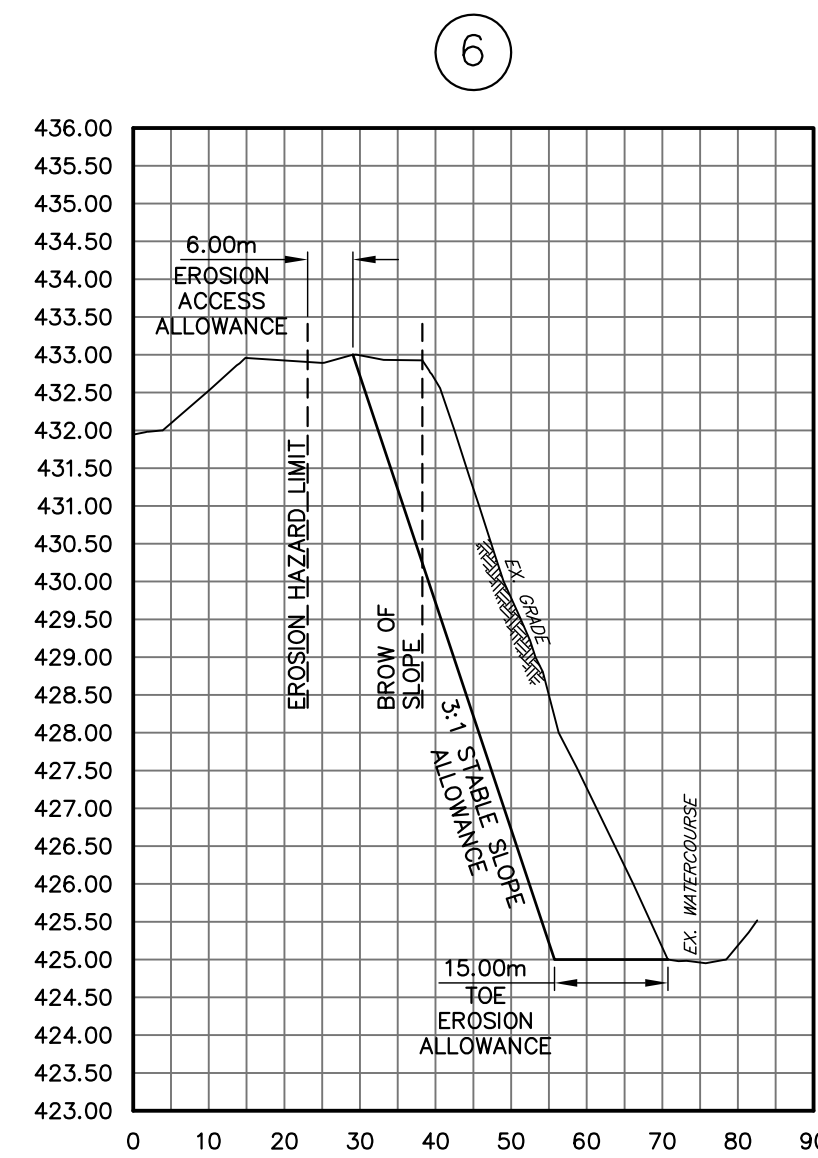
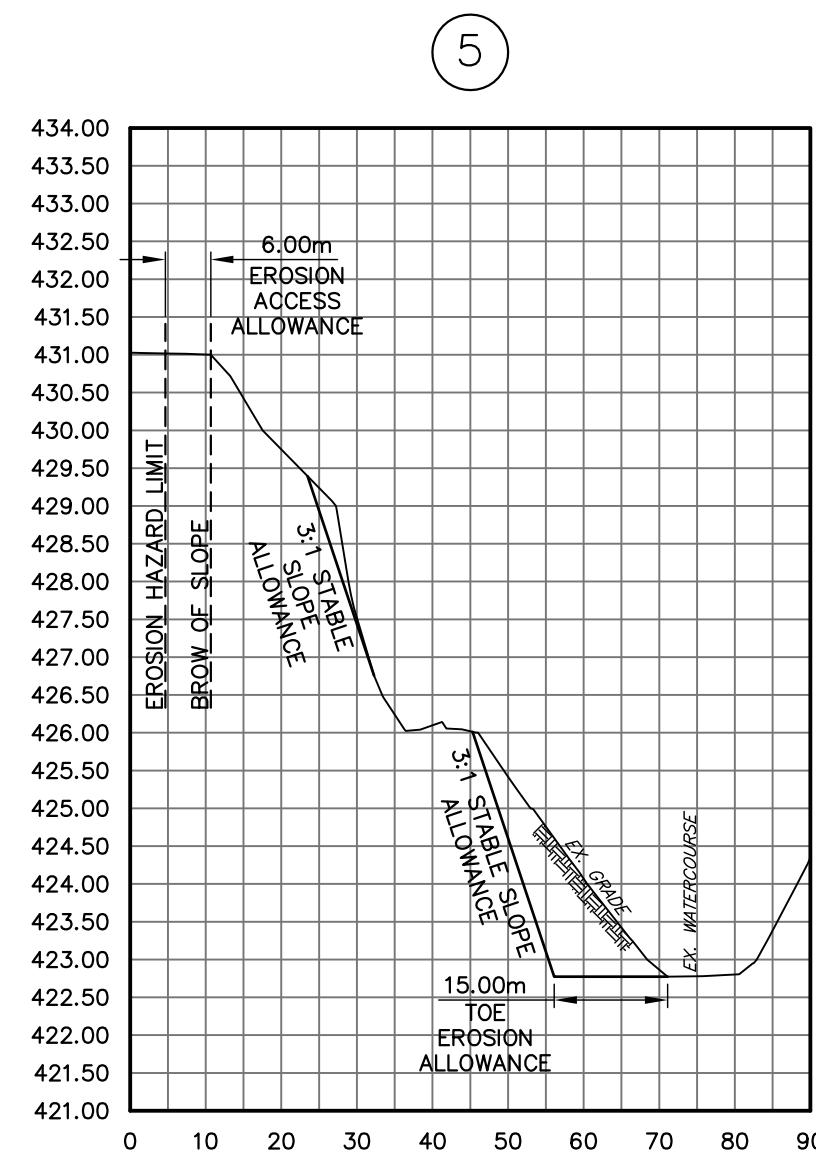
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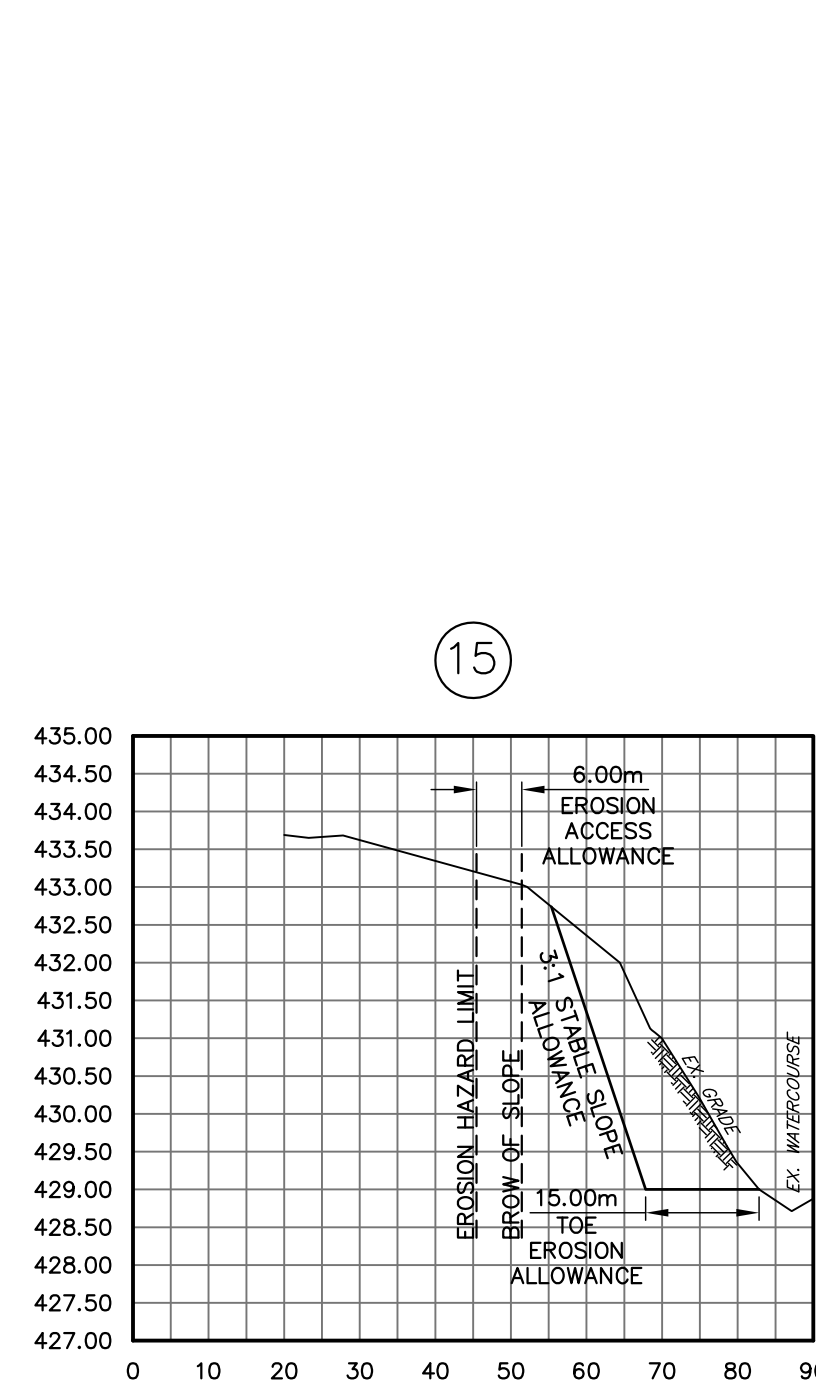
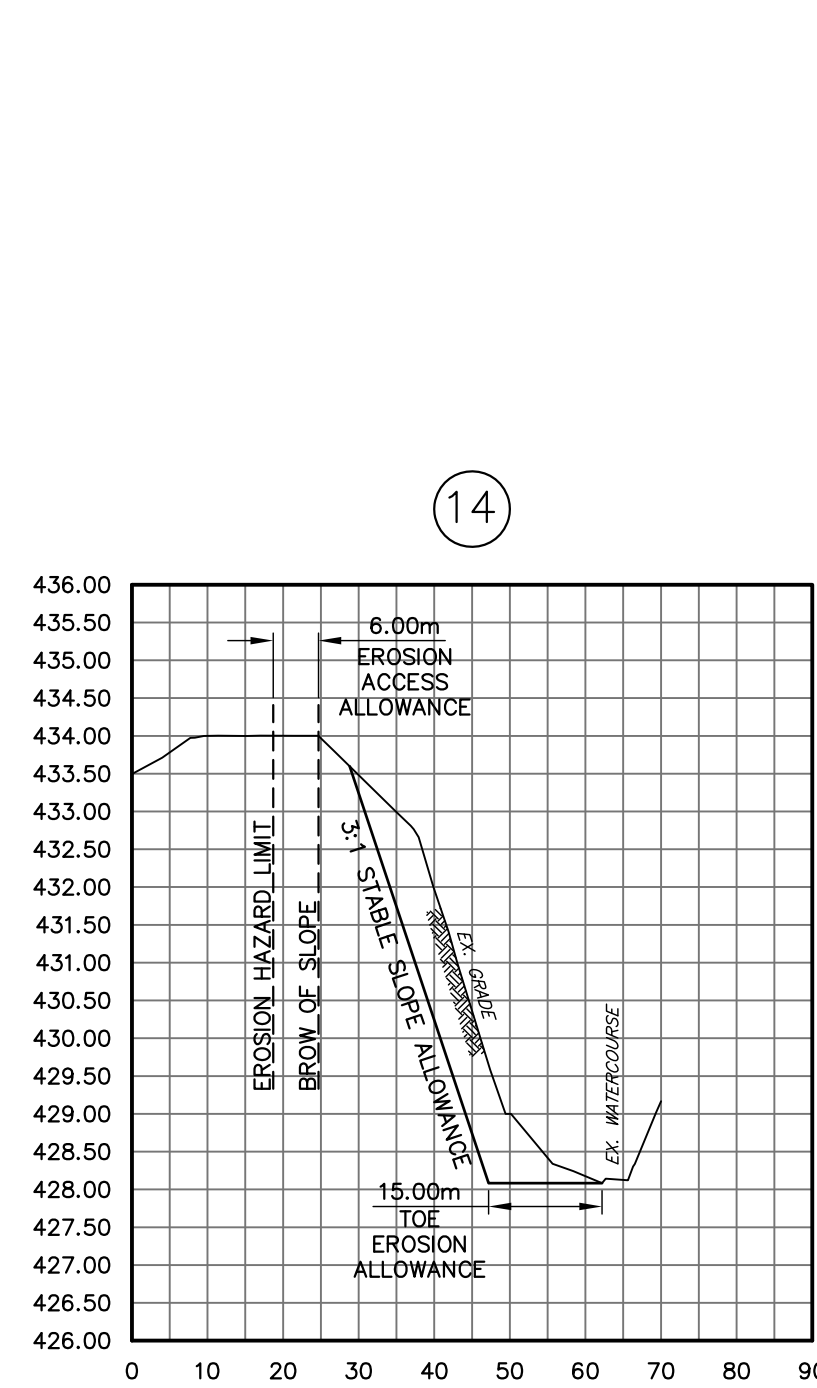
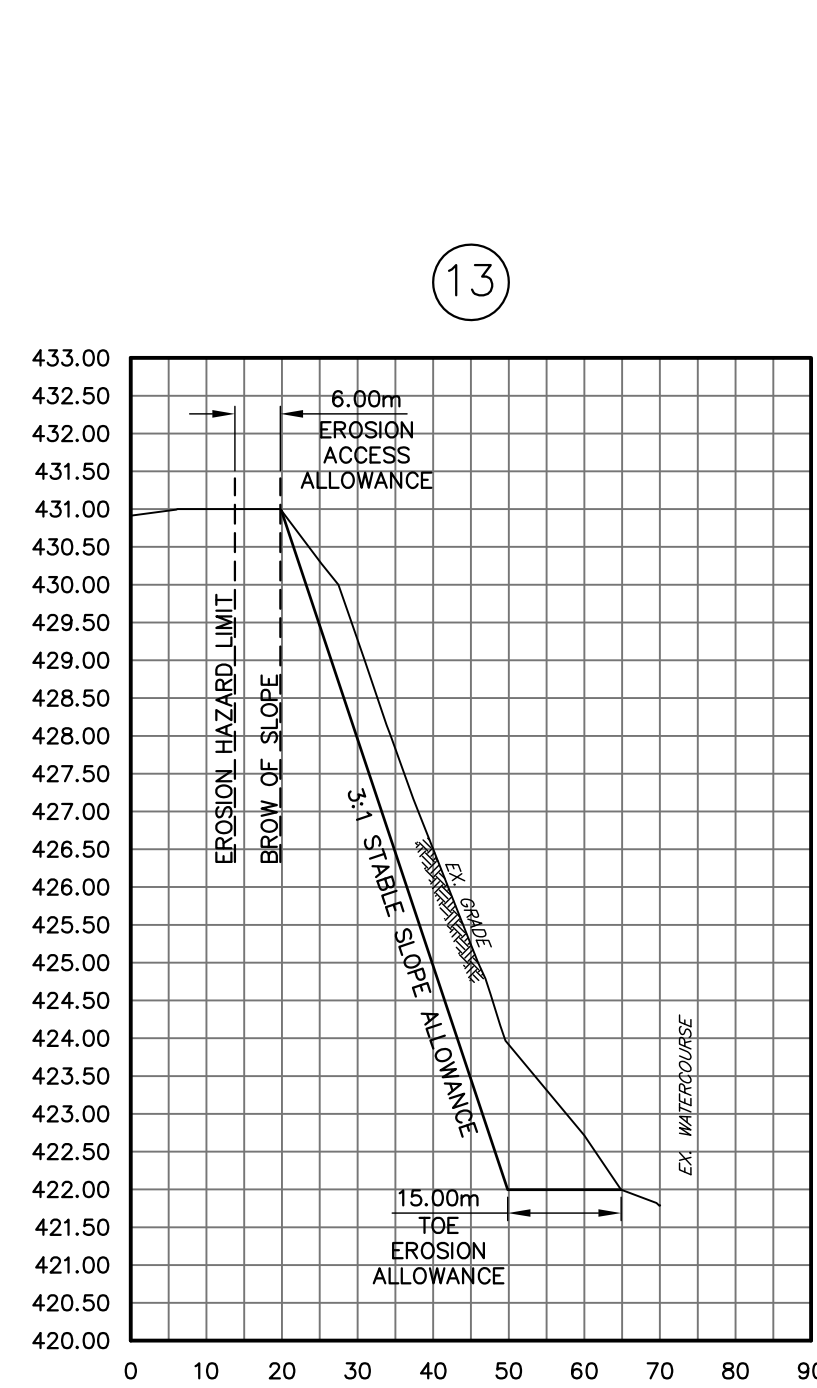
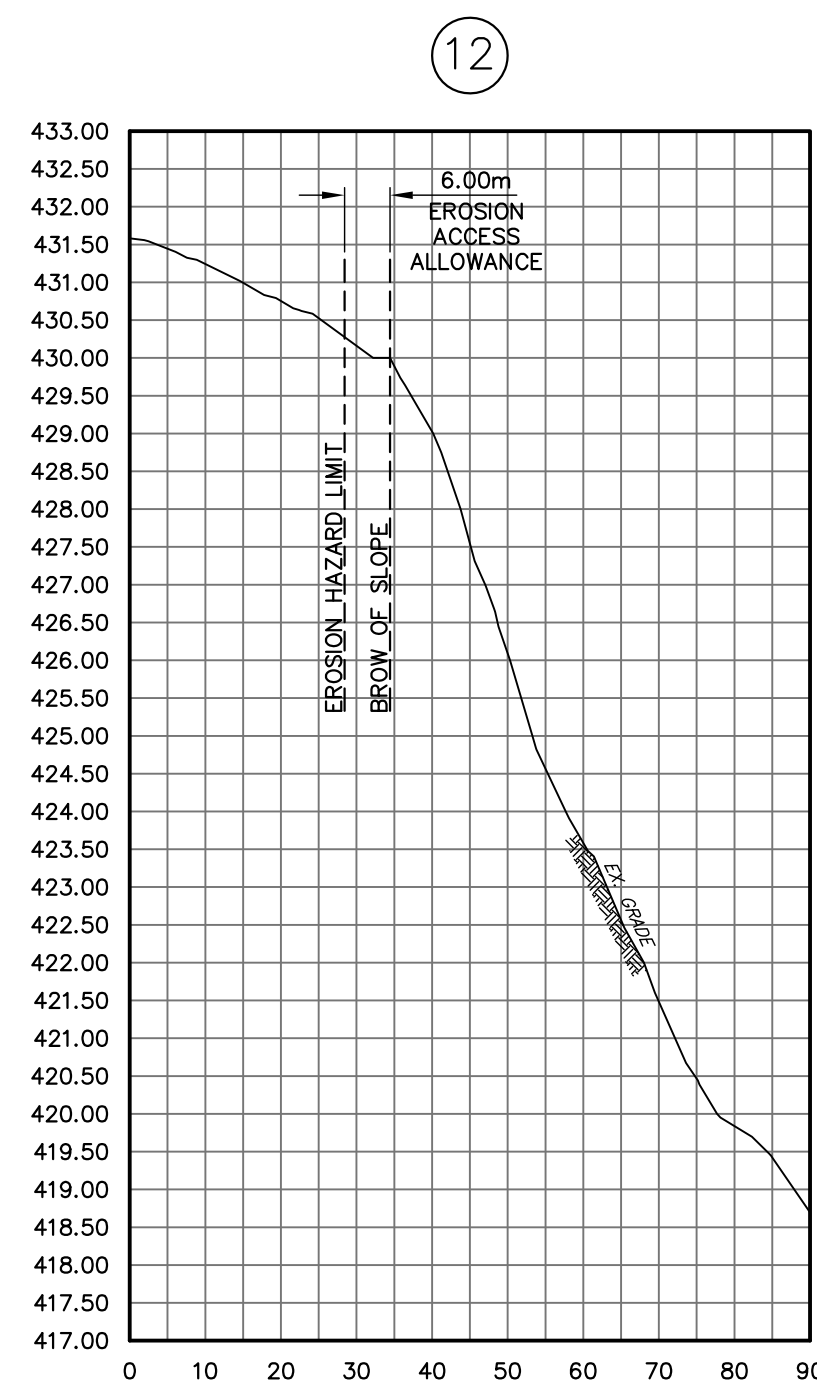
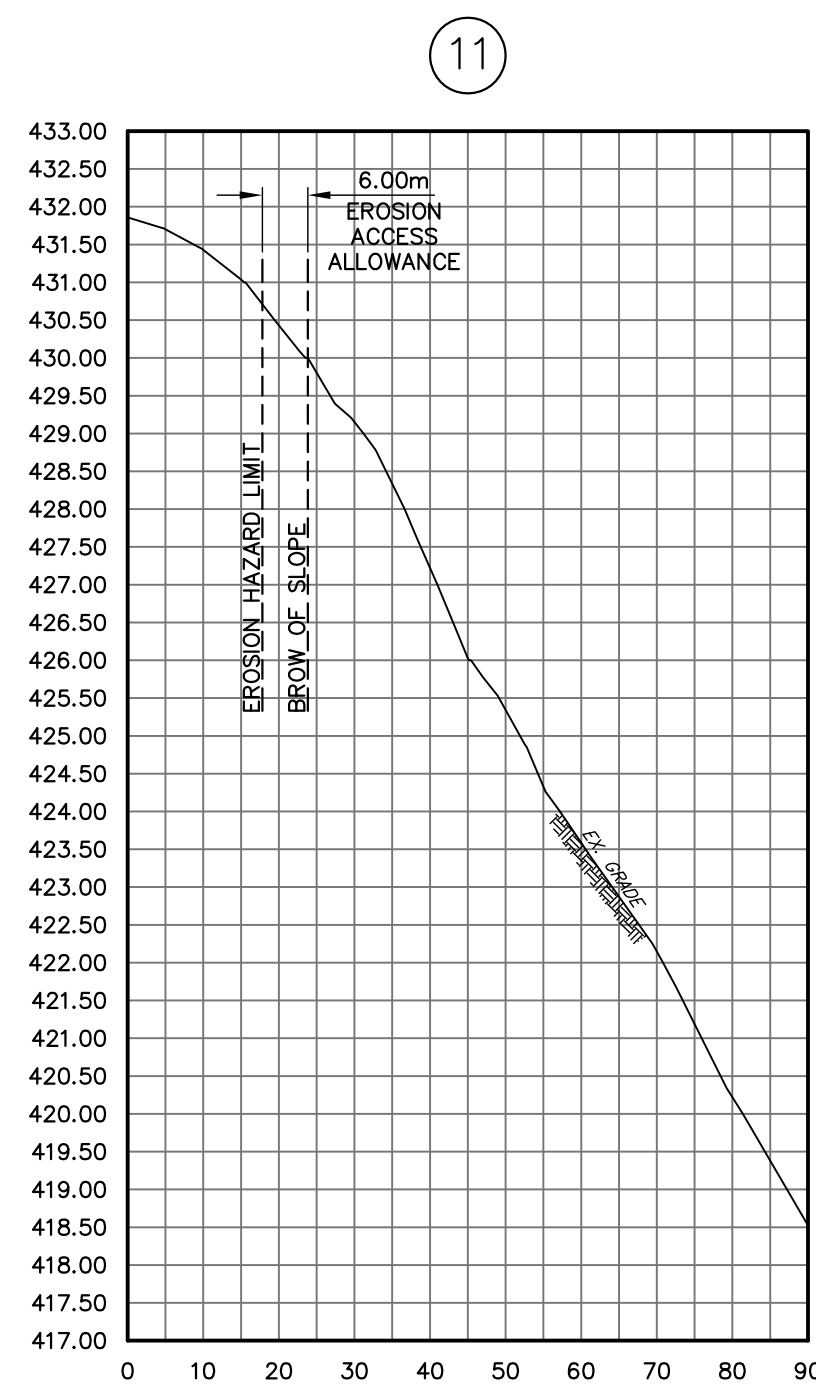
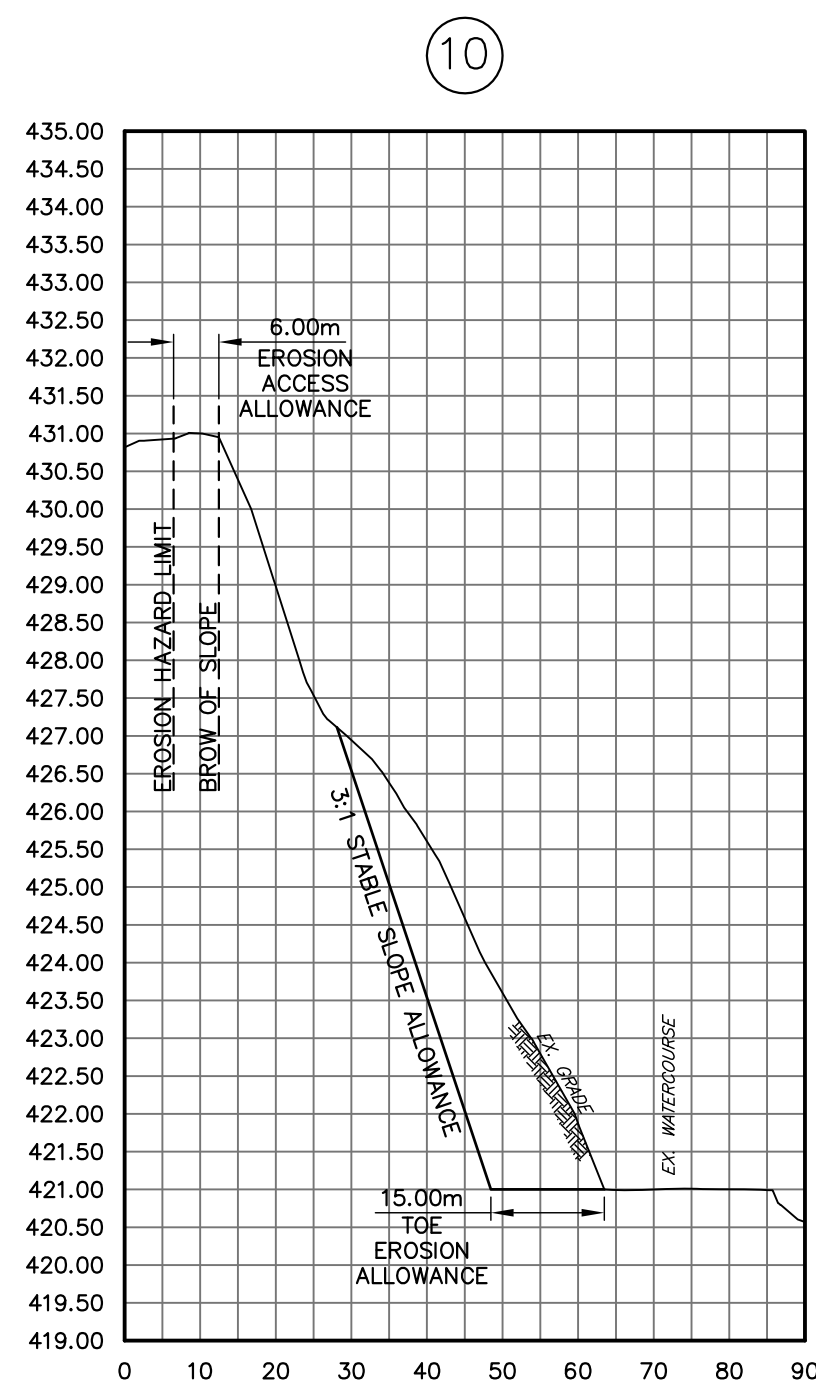
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DESIGN: DRT CHECKED: DRT **DWG. EH-1**

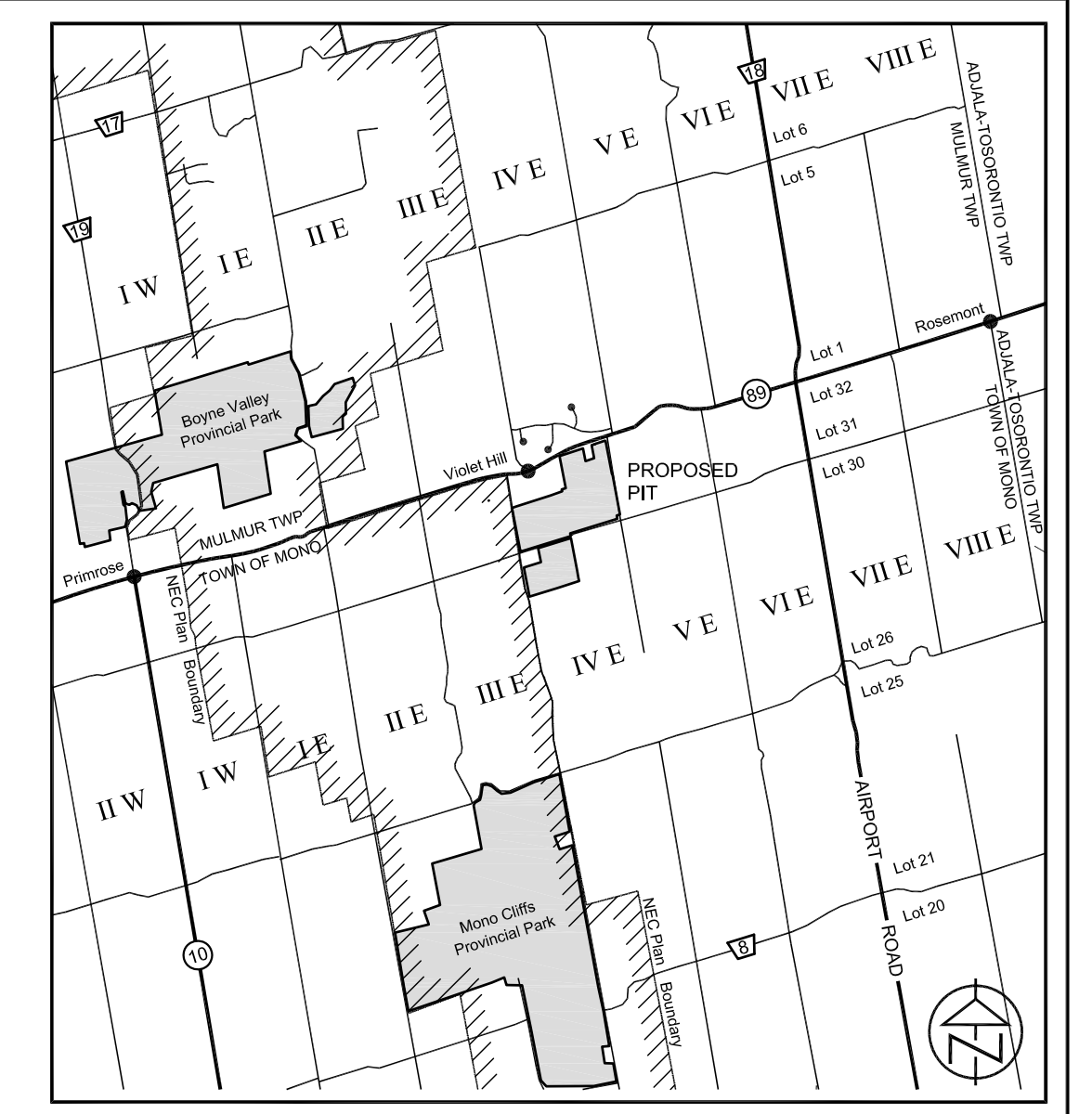
DRAWN: JDKA DATE: JANUARY 2015



CROSS SECTIONS
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NO.	REVISIONS	DATE	INITIAL

APPROVED

 D.R.W. TWIGBER
 180147565
 March 31, 2015
 PROVINCE OF ONTARIO

**VIOLET HILL PIT
EROSION HAZARD ASSESSMENT**

HAZARD EROSION PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie
SCALE: AS NOTED JOB NO. 114239
DESIGN: DRT CHECKED: DRT
DRAWN: JDKA DATE: JANUARY 2015 **DWG. EH-2**