7.1 PURPOSE

The purpose of this drawing is to give a graphic portrayal of the geological conditions at the site of the structure (bridge, culvert, wall, etc.). This drawing is used to illustrate the outline, stationing, and location of the structure, the locations and results of test borings and proposed elevations of footing, piling or caissons.

7.2 RESPONSIBILITY

This drawing is prepared by the Geotechnical Engineer or Engineering Geologist of record, typically the CDOT Soils & Geotechnical Services or a Geotechnical Consultant. It shows the foundation data from the field investigation. The responsibility for the accuracy of the geological information presented on this drawing rests with the Geotechnical Engineer or Engineering Geologist.

7.3 SCALES

Suggested zoom scales for presenting the Plan and Elevation views in paper space are as follows: 1" = 30', 1" = 40', 1" = 50', 1" = 60'. For longer walls, a smaller scale may be used.

7.4 PLAN AND ELEVATION

Whether a Geotechnical Consultant firm or CDOT Soils & Geotechnical Services is preparing the Engineering Geology sheet, a copy of the electronic file of the structure's General Layout (plan, longitudinal section, and typical transverse section), drawn at the correct project coordinates, shall be shared with them for their use.
The detailer may use the bridge worksheet B-GEO-1 Engineering Geology for assistance.

7.5 CHECK ITEMS

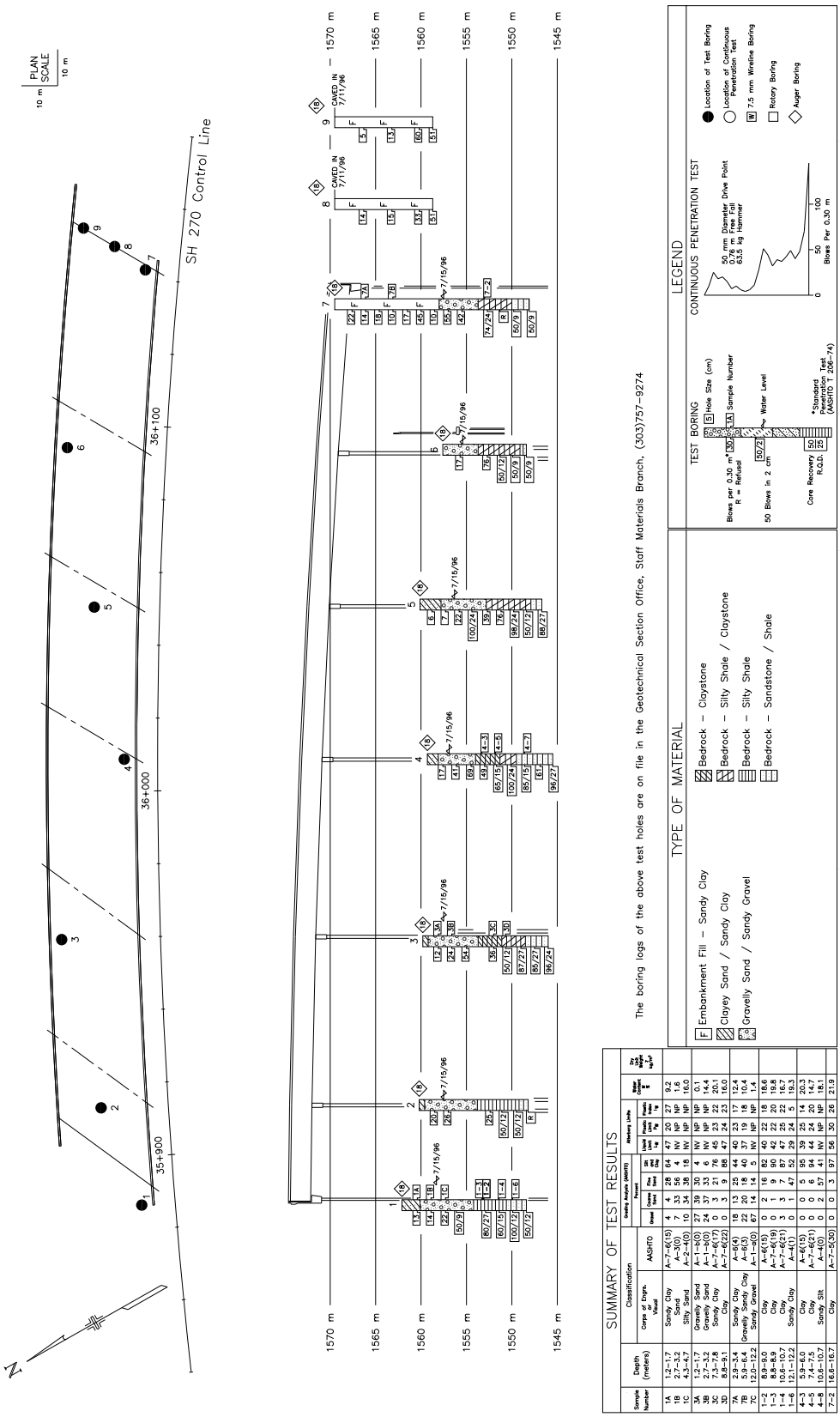
Listed below are items that must be checked to see that they appear on the drawing.

A) Standard North Arrow.
B) Show the outline of the structure in both the Plan and Elevation views.
C) Show footings on the Elevation view, at their correct elevations.
D) Show piling and caissons, on the Elevation view, to their correct tip elevations.
E) Stations along Station Line.
F) Elevation reference on both left and right sides of the Elevation view.
G) Station Line terminology (Survey Line, Projected Line, etc.).
H) Project and Subaccount Number.
I) Check title block for information indicated in Section 7.6.
J) Initial and date blocks filled in.

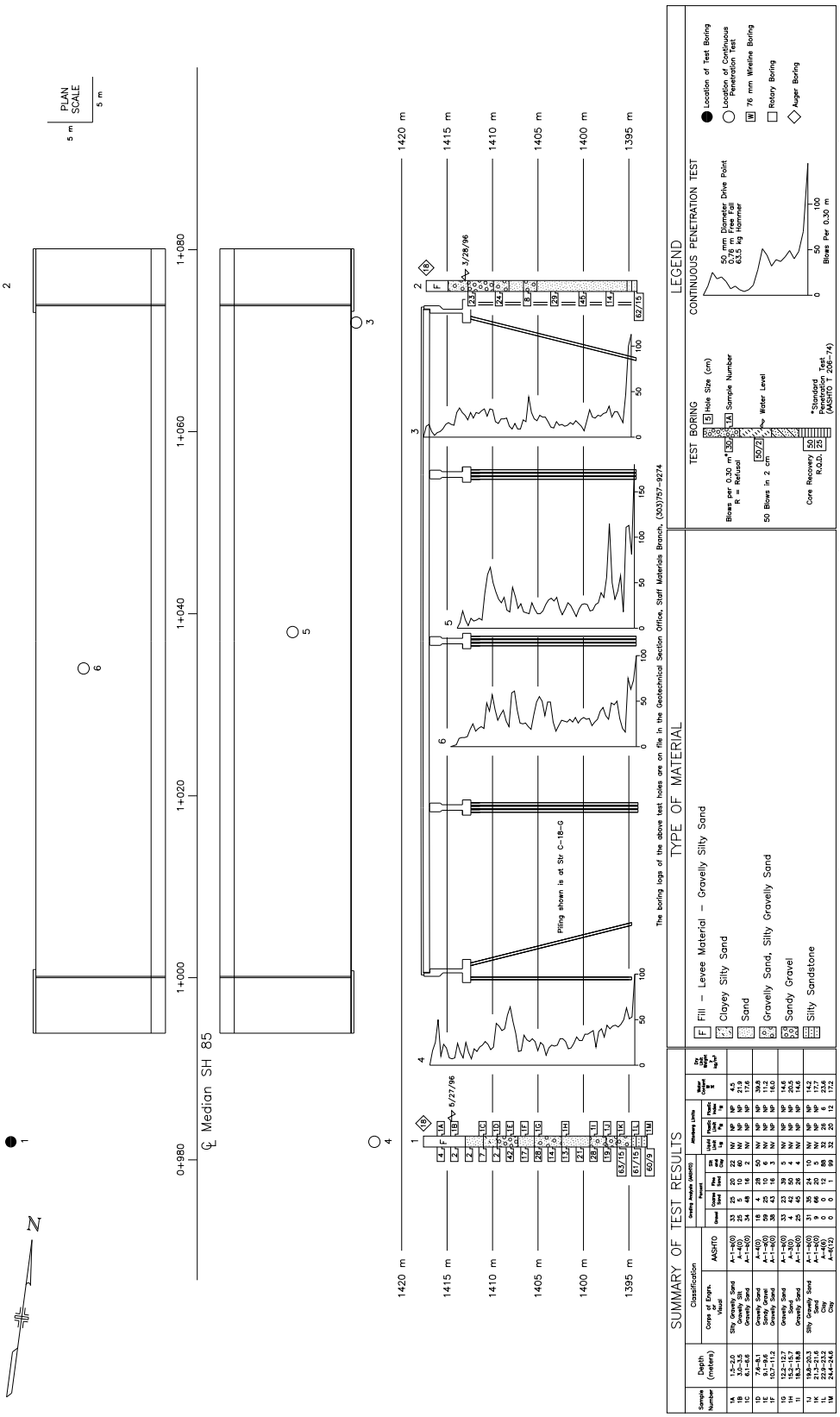
7.6 TITLE BLOCK

This drawing is titled "ENGINEERING GEOLOGY". The feature intersected should be shown under "Engineering Geology".

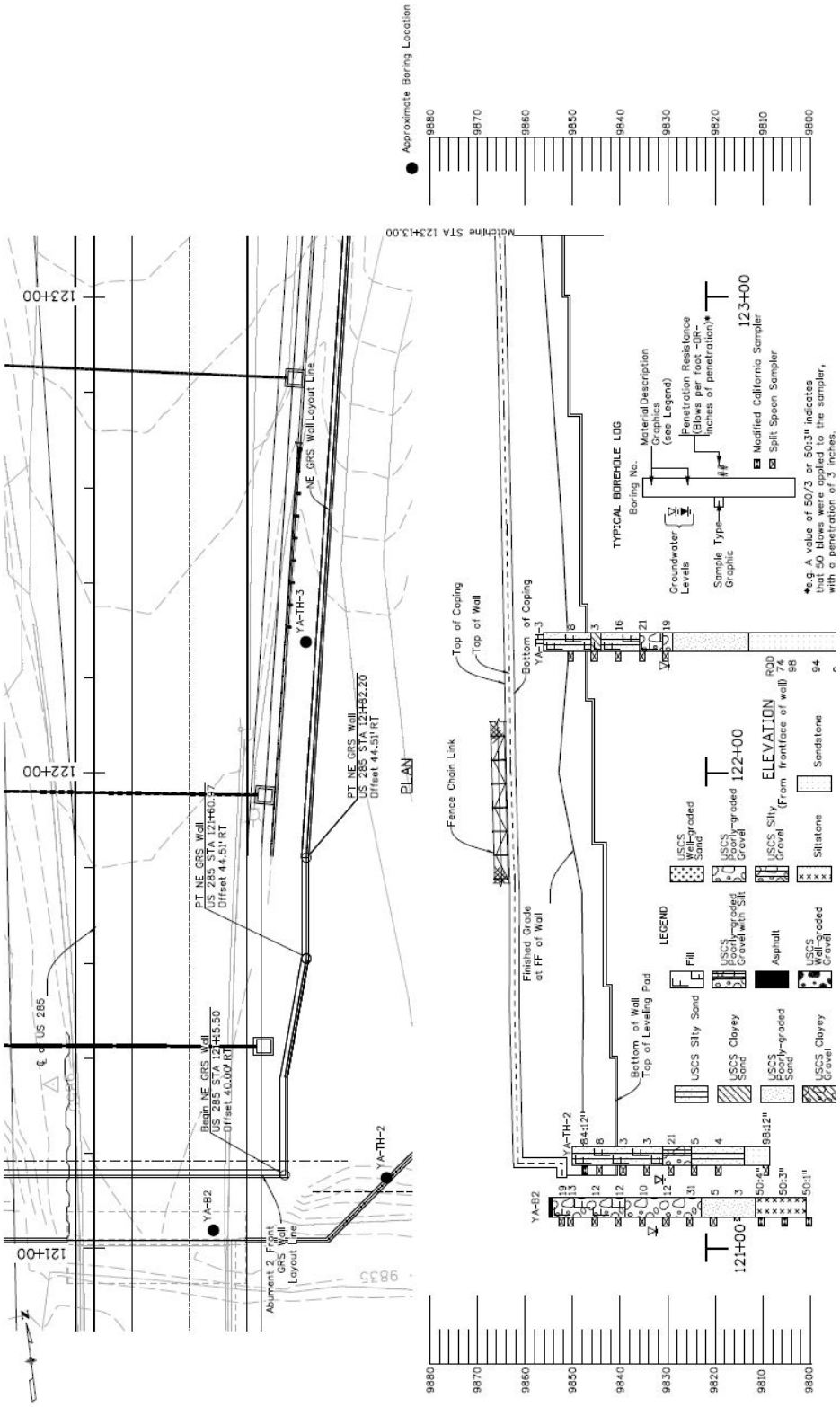
The structure number or numbers and the first initial and last name of the Geologist and the person preparing the drawing shall be filled in.


PLAN
SCALE
10 m
10 m
SH 270 Control Line
35+900
36+000
36+100
1570 m
1565 m
1560 m
1555 m
1550 m
1545 m
CAVED IN 7/11/96
7/15/96
SUMMARY OF TEST RESULTS
Classification
Sieve Analysis (AASHTO)
Atterberg Limits
Sample Number
Depth (meters)
Color of Engrs. Visual
AASHTO
Gravel
Sand
Fines
Liquid Limit %
Plastic Index %
Plastic Flag
Water Content %
Dry Density kg/m³
1A 1.2–1.7 Sandy Clay A-7-6(15) 4 4 28 64 47 20 27 9.2
1B 2.7–3.2 Sand A-3(0) 7 33 56 4 NV NP NP 1.6
1C 4.3–4.7 Silty Sand A-2-4(0) 10 34 38 18 NV NP NP 16.0
3A 1.2–1.7 Gravelly Sand A-1-a(0) 27 39 30 4 NV NP NP 7.1
3B 2.7–3.2 Gravelly Sand A-1-a(0) 24 37 33 6 NV NP NP 14.4
3C 7.3–7.8 Sandy Clay A-7-6(17) 0 3 21 76 45 23 22 20.1
3D 8.8–9.1 Clay A-7-6(22) 0 3 9 88 47 24 23 16.0
7A 2.9–3.4 Sandy Clay A-6(4) 18 13 25 44 40 23 17 12.4
7B 5.9–6.4 Gravelly Sandy Clay A-1-b(0) 22 20 18 40 19 NP NP 10.4
7C 12.0–12.2 Sandy Gravel A-1-a(0) 67 14 14 5 NV NP NP 1.4
1–2 8.9–9.0 Clay A-6(15) 0 2 16 82 40 22 18 18.6
1–3 8.8–8.9 Clay A-7-6(19) 0 1 9 90 42 22 20 19.8
1–4 10.6–10.7 Clay A-7-6(21) 0 3 7 87 47 25 22 16.7
1–5 12.1–12.2 Sandy Clay A-6(11) 0 3 7 87 42 24 18 15.3
4–3 5.9–6.0 Clay A-6(15) 0 0 5 95 39 25 14 20.3
4–5 7.4–7.5 Clay A-7-6(21) 0 0 6 94 44 24 20 14.7
4–8 10.6–10.7 Sandy Silt A-4(0) 0 0 2 57 41 NV NP 18.1
7–2 16.8–16.7 Clay A-7-5(30) 0 0 3 97 56 30 26 21.9
The boring logs of the above test holes are on file in the Geotechnical Section Office, Staff Materials Branch, (303)757-9274
TYPE OF MATERIAL
Embankment Fill – Sandy Clay
Clayey Sand / Sandy Clay
Gravelly Sand / Sandy Gravel
Bedrock – Claystone
Bedrock – Silty Shale / Claystone
Bedrock – Silty Shale
Bedrock – Sandstone / Shale
LEGEND
TEST BORING
Hole Size (cm)
Sample Number
Blows per 0.30 m, R = Refusal
Water Level
50 Blows in 2 cm
Core Recovery
R.Q.D.
*Standard Penetration Test (AASHTO T 206-74)
CONTINUOUS PENETRATION TEST
50 mm Diameter Drive Point with Freefall of 63.5 kg Hammer
Blows Per 0.30 m
Location of Test Boring
Location of Continuous Penetration Test
7.5 mm Wireline Boring
Rotary Boring
Auger Boring

Example 7-1


PLAN
SCALE
5 m
5 m
N
℄ Median SH 85
0+980
1+000
1+020
1+040
1+060
1+080
1
2
3
4
5
6
1420 m
1415 m
1410 m
1405 m
1400 m
1395 m
6/27/96
3/28/96
Piling shown is at Str C-18-G
The boring logs of the above test holes are on file in the Geotechnical Section Office, Staff Materials Branch, (303)757-9274
SUMMARY OF TEST RESULTS
TYPE OF MATERIAL
F Fill - Levee Material - Gravelly Silty Sand
Clayey Silty Sand
Sand
Gravelly Sand, Silty Gravelly Sand
Sandy Gravel
Silty Sandstone
LEGEND
TEST BORING
CONTINUOUS PENETRATION TEST
Location of Test Boring
Location of Continuous Penetration Test
76 mm Wireline Boring
Rotary Boring
Auger Boring
Hole Size (cm)
Sample Number
Water Level
Blows per 0.30 m
R = Refusal
50 Blows in 2 cm
50 mm Diameter Drive Point
0.76 m Free Fall
63.5 kg Hammer
Blows Per 0.30 m
Core Recovery
R.Q.D.
*Standard Penetration Test (AASHTO T 206-74)

Example 7-2


PLAN
ELEVATION
TYPICAL BOREHOLE LOG
LEGEND
Approximate Boring Location
Begin NE GRS Wall
US 285 STA 121+45.50
Offset 40.00' RT
PT NE GRS Wall
US 285 STA 122+60.57
Offset 44.51' RT
PT NE GRS Wall
US 285 STA 123+82.20
Offset 44.51' RT
NE GRS Wall Layout Line
Abutment 2 Front GRS Wall Layout Line
YA-TH-2
YA-TH-3
YA-B2
US 285
Top of Coping
Top of Wall
Bottom of Coping
Fence Chain Link
Finished Grade at FF of Wall
Bottom of Wall
Top of Leveling Pad
Fill
Asphalt
USCS Silty Sand
USCS Clayey Sand
USCS Poorly-graded Sand
USCS Clayey Gravel
USCS Well-graded Sand
USCS Poorly-graded Gravel
USCS Silty Gravel
Siltstone
Sandstone
Material Description
Graphics
(see Legend)
Penetration Resistance
(Blows per foot -OR-
Inches of penetration)*
Groundwater Levels
Sample Type Graphic
Modified California Sampler
Split Spoon Sampler
*e.g. A value of 50/3 or 50:3" indicates that 50 blows were applied to the sampler, with a penetration of 3 inches.
RQD
74
98
94
121+00
122+00
123+00
9880
9870
9860
9850
9840
9830
9820
9810
9800

Example 7-3