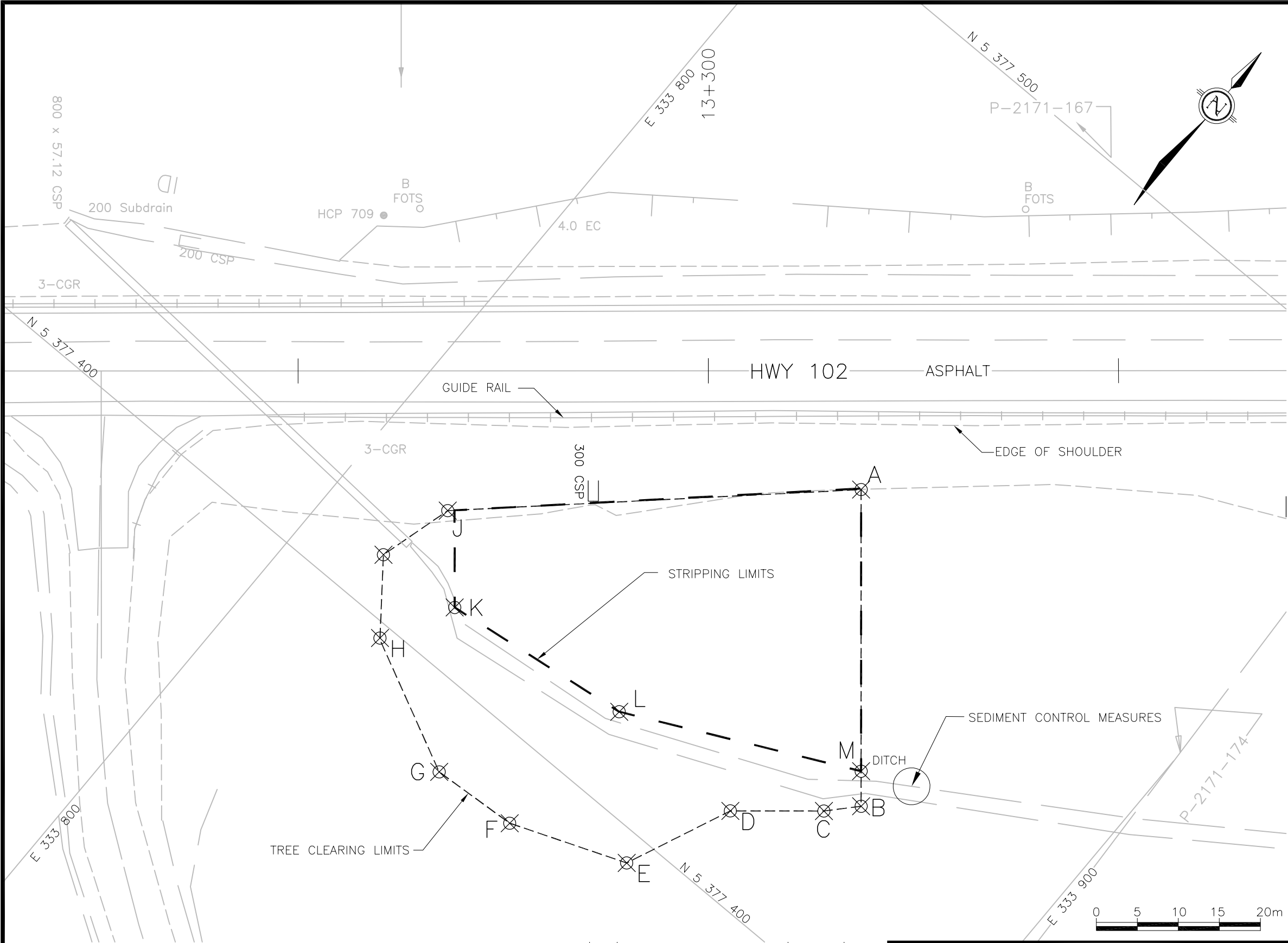


APPENDIX E

Construction Drawings



NOTES:

1. INSTALL SEDIMENT CONTROL MEASURES AT LOCATION INDICATED. AS A MINIMUM, A SILT CURTAIN IS TO BE INSTALLED AND MAINTAINED ACROSS THE EXISTING DITCH. ADDITIONAL MEASURES MAY BE REQUIRED PENDING INSPECTION.
2. CLOSE CUT AND REMOVE ALL TREES WITHIN LIMITS INDICATED. TREES TO BE LEFT ON SITE OUTSIDE OF TREE CUTTING LIMITS AS PER DIRECTION OF MTO.
3. STRIPPING OF ALL SURFICAL ORGANICS/TOPSOIL WITHIN LIMITS INDICATED. STRIP MATERIALS TO BE WASTED WITHIN DITCH INFILLING LIMITS AS SHOWN ON DRAWINGS 3A TO 3B.

EXCAVATION AND STRIPPING POINTS


POINT	NORTHING	EASTING
A	5377449.9	333849.6
B	5377420.3	333874.3
C	5377416.9	333871.2
D	5377409.6	333862.5
E	5377396.6	333856.8
F	5377391.2	333842.8
G	5377390.5	333832.2
H	5377398.4	333816.2
I	5377406.4	333810.0
J	5377415.6	333812.6
K	5377407.1	333820.8
L	5377410.2	333844.3
M	5377423.5	333871.6

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


0	FOR FINAL REPORT	2008-11-03	WH
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:
TREE CLEARING AND STRIPPING LIMITS

PROJECT:
**STAGE ONE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO**



CONT No. 200-6270
GWP No. 6025-08-00



CLIENT:
MTO

DRAWN BY:
T.B.

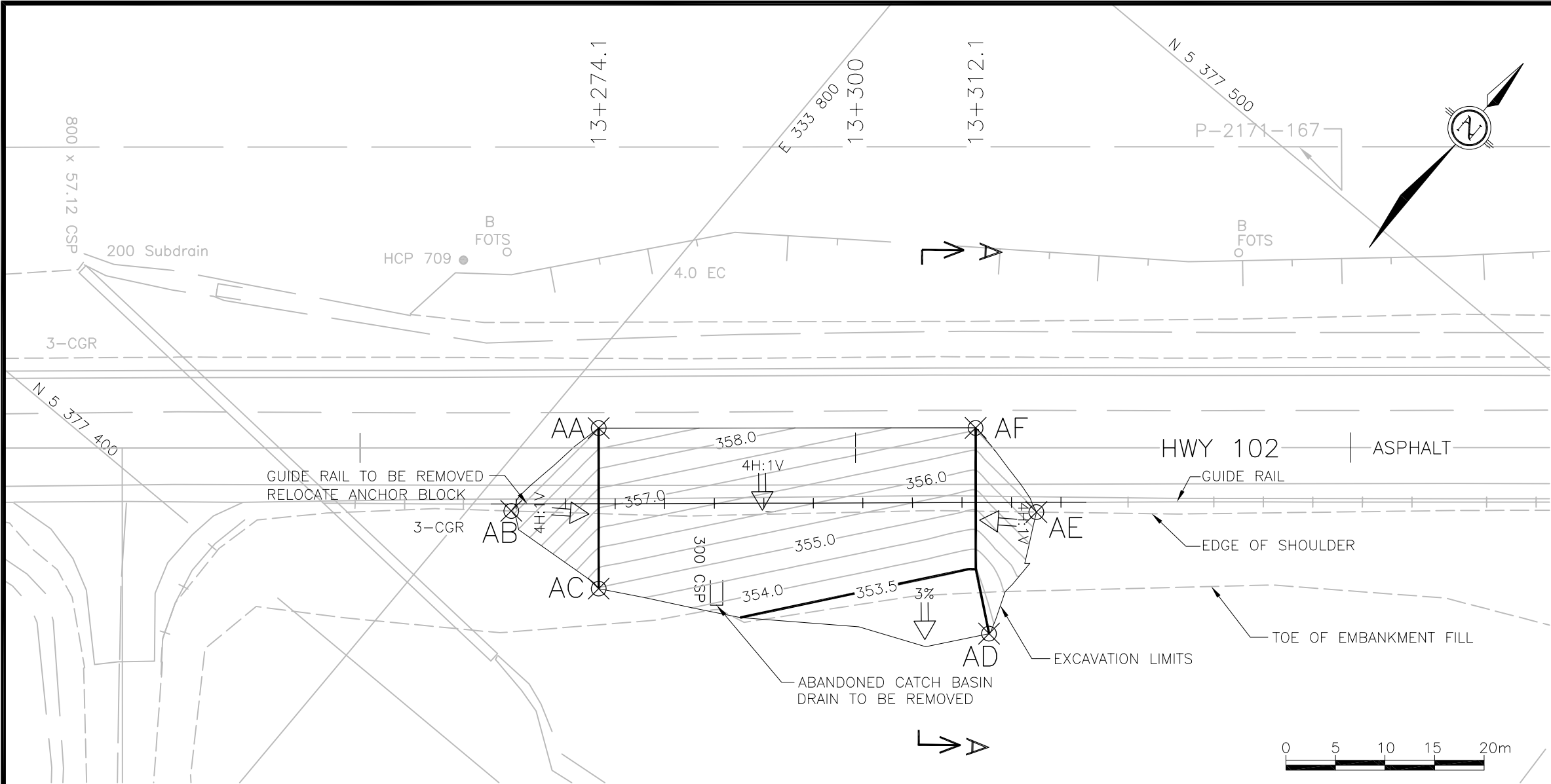
APPROVED BY:
G.M.

SCALE:
AS SHOWN

PROJECT NO.
08-011-2

DATE:
JULY 7, 2008

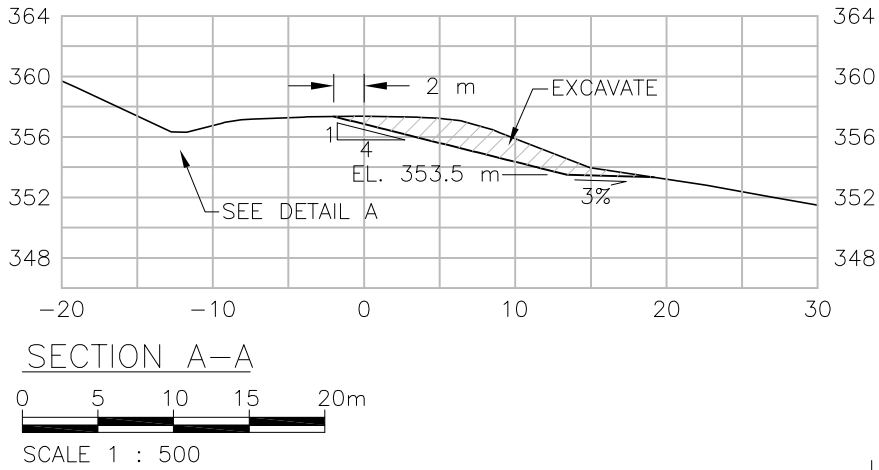
DRAWING
1-1



- NOTES:
1. REMOVE GUIDE RAIL WITHIN EXCAVATION LIMITS. INSTALL ANCHOR BLOCKS TO MAINTAIN EXISTING GUIDE RAIL OUTSIDE OF EXCAVATION LIMITS.
 2. EXCAVATED MATERIALS TO BE USED FOR DITCH INFILLING AS PER DRAWING 3A AND 3B.
 3. WHERE CLAY SUBGRADE IS EXPOSED WITHIN EXCAVATION LIMITS COVER WITH 0.5 m THICKNESS OF GRANULAR BLANKET MATERIAL.


CUT LIMITS		
POINT	NORTHING	EASTING
AA	5377433.9	333804.8
AB	5377421.9	333803.4
AC	5377421.5	333815.2
AD	5377443.3	333848.4
AE	5377455.8	333844.2
AF	5377458.3	333834.0

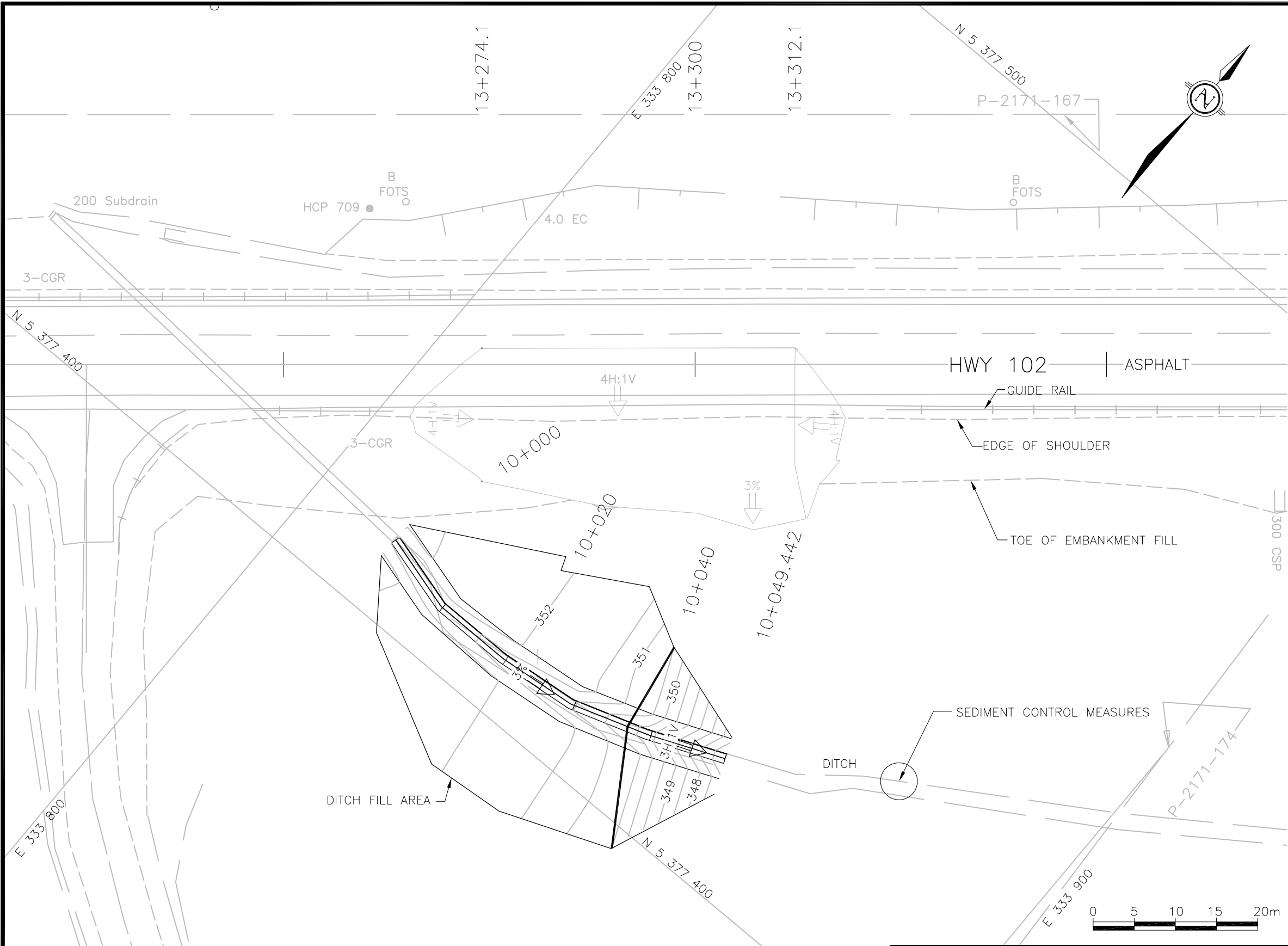
- DETAIL A NOTES:
1. EXCAVATE AND REMOVE EXISTING SUBDRAIN, STONE BACKFILL AND GEOTEXTILE. SEAL OF ENDS OF REMAINING SUBDRAIN WITH CONCRETE PLUG.
 2. BACK FILL EXCAVATION TO ORIGINAL GRADE WITH GRAN 'A' FILL COMPACTED TO 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY.
 3. PLACE BENTOFIX CLAY LINER ACROSS FULL WIDTH AND LENGTH OF EXISTING SUBDRAIN.
 4. PLACE 100 mm GRANULAR 'A' AS SHOWN (OPSS 1010).
 5. PLACE 300 mm GRANULAR BLANKET MATERIAL.
 6. EXTEND BENTOFIX/GANULAR TREATMENT TO (AND INCLUDE) CENTER LINE CULVERT OPENING.



0	FOR FINAL REPORT	2008-11-03	WH
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:	EMBANKMENT CUT
PROJECT:	STAGE ONE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTQUIA, ONTARIO

 TBT ENGINEERING CONSULTING GROUP	DRAWN BY:	PROJECT NO.
	T.B.	08-011-2
	APPROVED BY:	DATE:
CLIENT:	G.M.	JULY 7, 2008
MTO	SCALE:	DRAWING
	AS SHOWN	1-2



NOTES:

- EXCAVATED MATERIAL TO BE PLACED WITHIN EXISTING DITCH TO LIMITS INDICATED.
- PREFERRED INFILLING TO CONSIST OF ASPHALT/STRIPPING MATERIAL FIRST FOLLOWED BY GRANULAR FILL FROM EMBANKMENT CUT.

DITCH FILL AREA CENTRELINE

POINT	NORTHING	EASTING
10+000	5377409.3	333811.7
10+010	5377406.7	333821.4
10+020	5377407.0	333834.3
10+030	5377407.8	333841.3
10+040	5377411.0	333850.8
10+049.442	5377414.6	333859.5

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

NO	DESCRIPTION	DATE	APP'V
2	FOR FINAL REPORT	2008-11-03	WH
1	NORTH DITCH REMOVED & GRADING CHANGE	2008-07-09	W.H.

DWG. TITLE:
DITCH FILL AREA WITH EXCAVATED MATERIAL

PROJECT:
**STAGE ONE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO**



CONT No. 200-6270
GWP No. 6025-08-00



CLIENT:
MTO

DRAWN BY:
T.B.

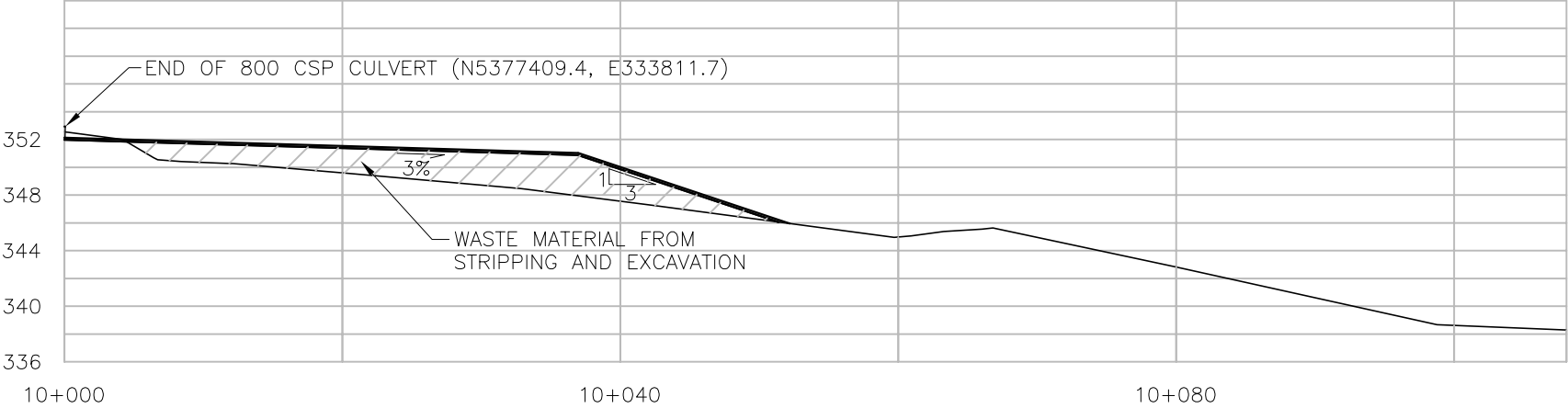
PROJECT NO.
08-011-2

APPROVED BY:
G.M.

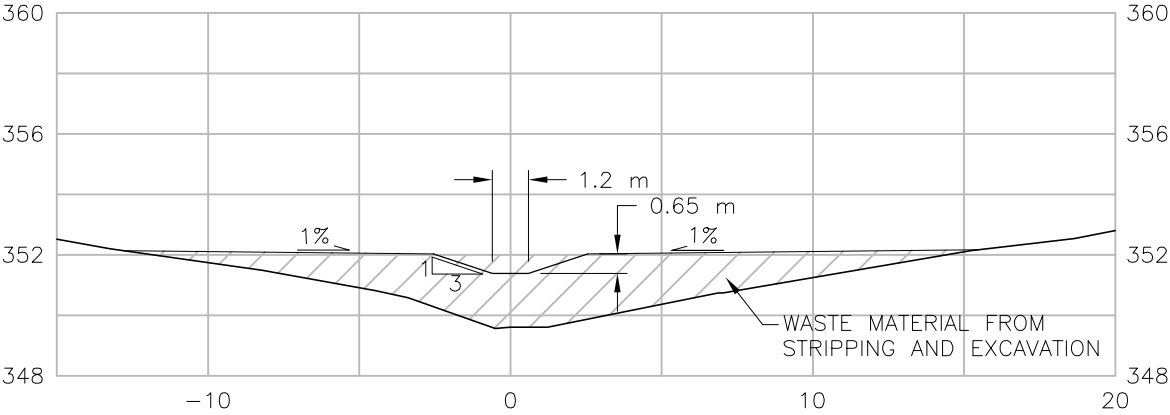
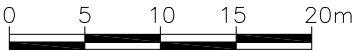
DATE:
JULY 7, 2008

SCALE:
AS SHOWN

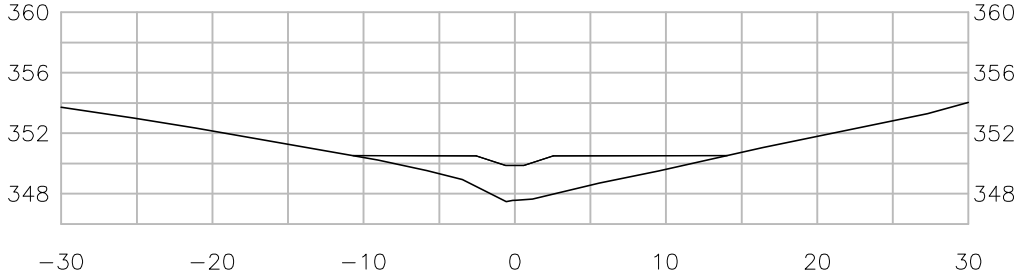
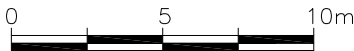
DRAWING
1-3A



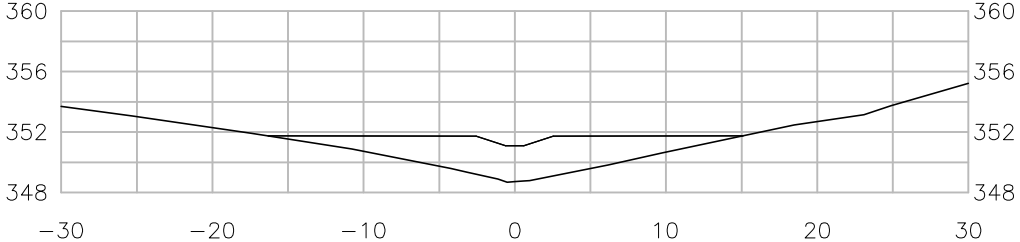
PROFILE ALONG DITCH FILL AREA CENTRELINE



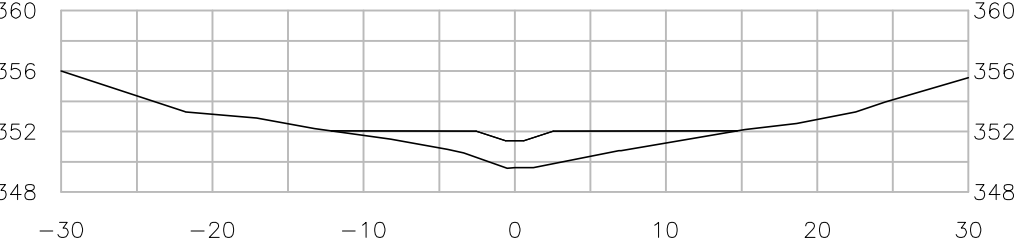
TYPICAL CROSS SECTION



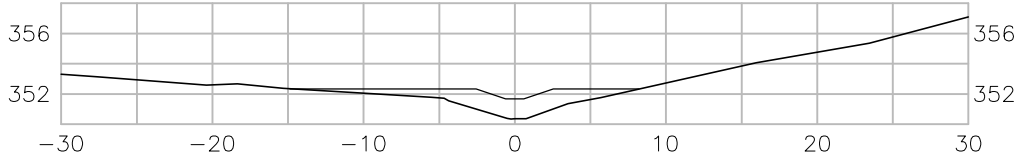
10+040



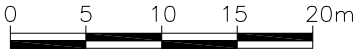
10+030



10+020



10+010




METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


2	FOR FINAL REPORT	2008-11-03	WH
1	NORTH DITCH REMOVED & GRADING CHANGE	07/09/08	W.H.
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:
DITCH FILL AREA CROSS-SECTIONS

PROJECT:
STAGE ONE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



CONT No. 200-6270
GWP No. 6025-08-00



CLIENT:
MTO

DRAWN BY:
T.B.

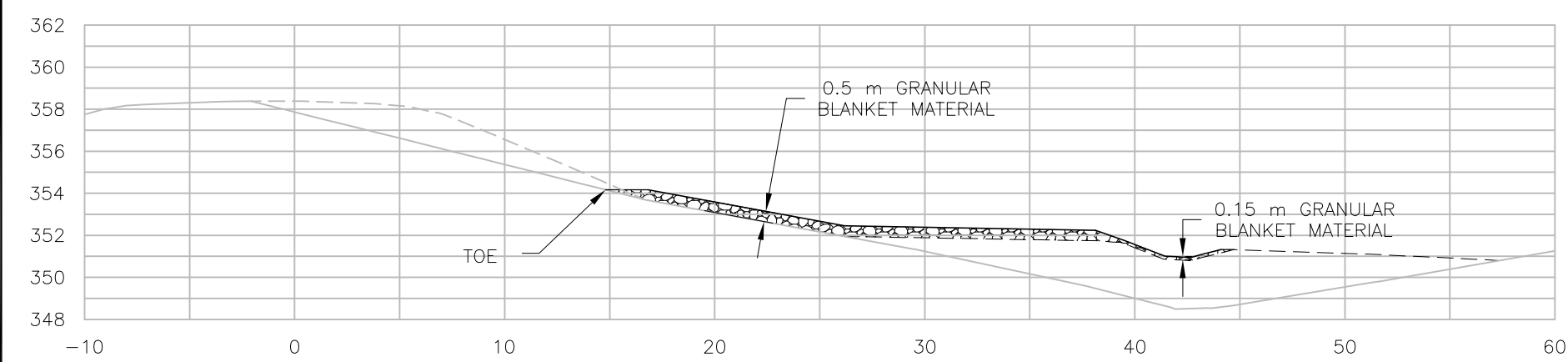
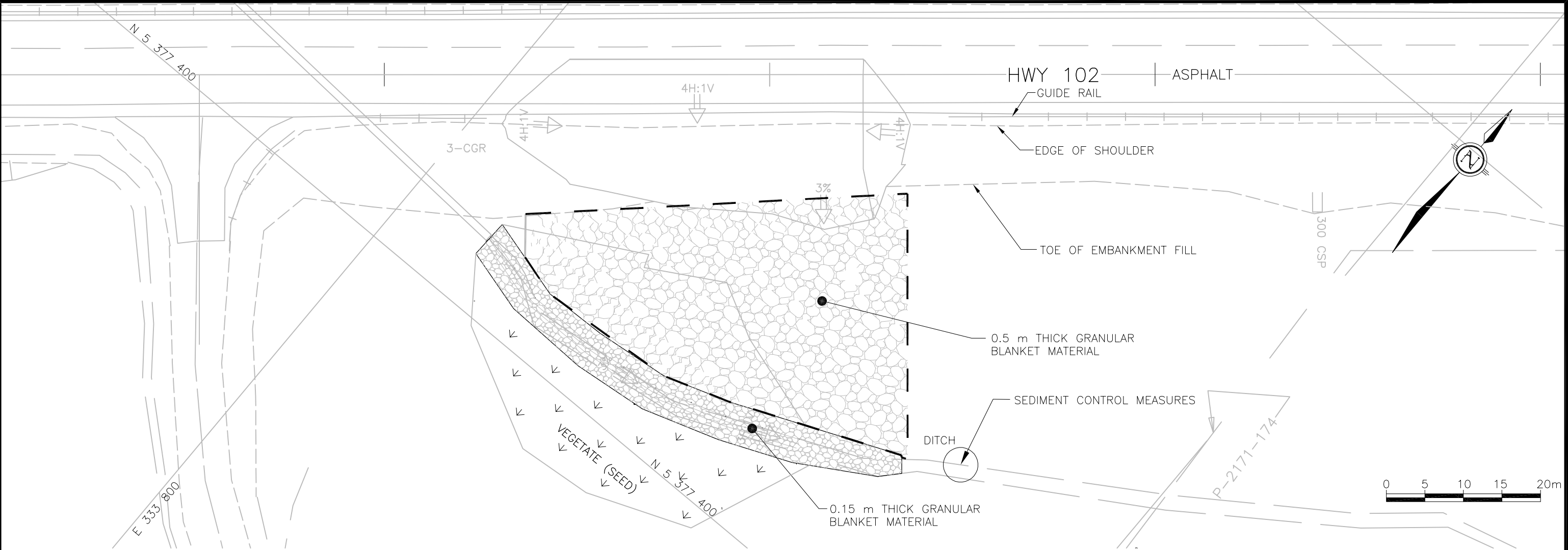
APPROVED BY:
G.M.

SCALE:
AS SHOWN

PROJECT NO.
08-011-2

DATE:
JULY 7, 2008

DRAWING
1-3B

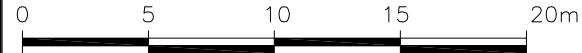


TYPICAL SECTION

ESTIMATED MATERIAL QUANTITIES

EXCAVATION:		
a) SUB-DRAIN	110	m3
b) STRIPPING	200	m3
c) EMBANKMENT CUT	850	m3
TOTAL	1180	m3
GRANULAR 'A':		
a) SUB-DRAIN	110	m3
GEOSYNTHETIC CLAY LINER (GCL)		
a) BENTOFIX EC, 1 ROLL 4.7x45 m,	211.5	m2
GRANULAR BLANKET MATERIAL		
a) SUB-DRAIN	50	m3
b) SOUTH SIDE SLOPE AND DITCH	800	m3
TOTAL	850	m3


NOTE: GRANULAR BLANKET MATERIAL TO CONSIST OF EITHER:
a) LEMPIALA NORTHERN WOODS AGGREGATE, or
b) HAQUOIL CLEAR STONE

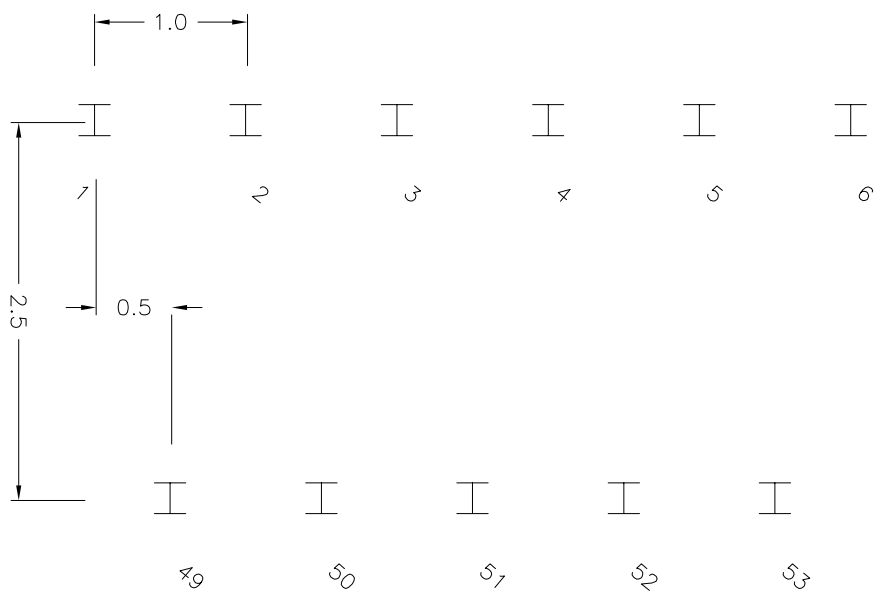
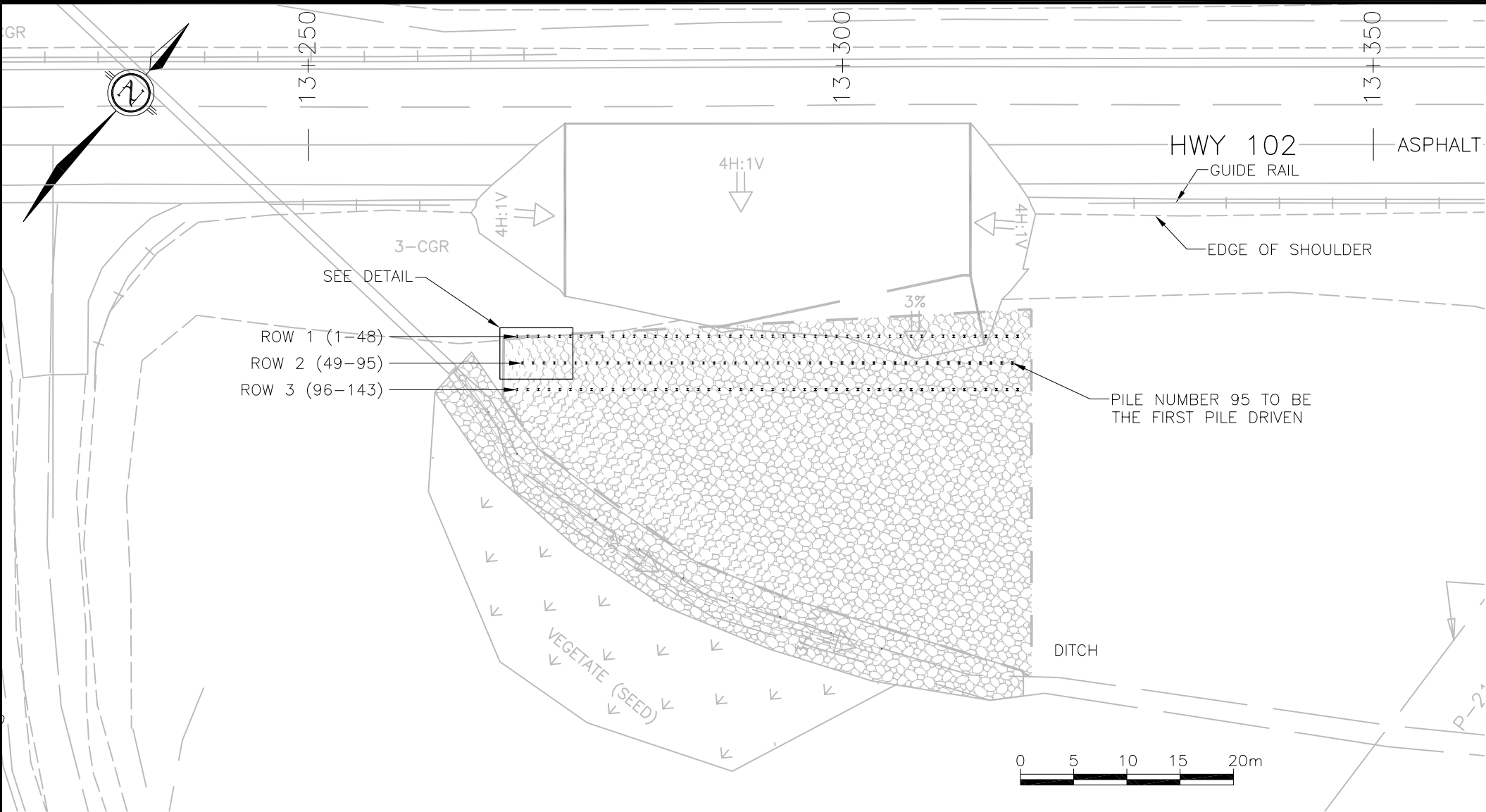


METRIC
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AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

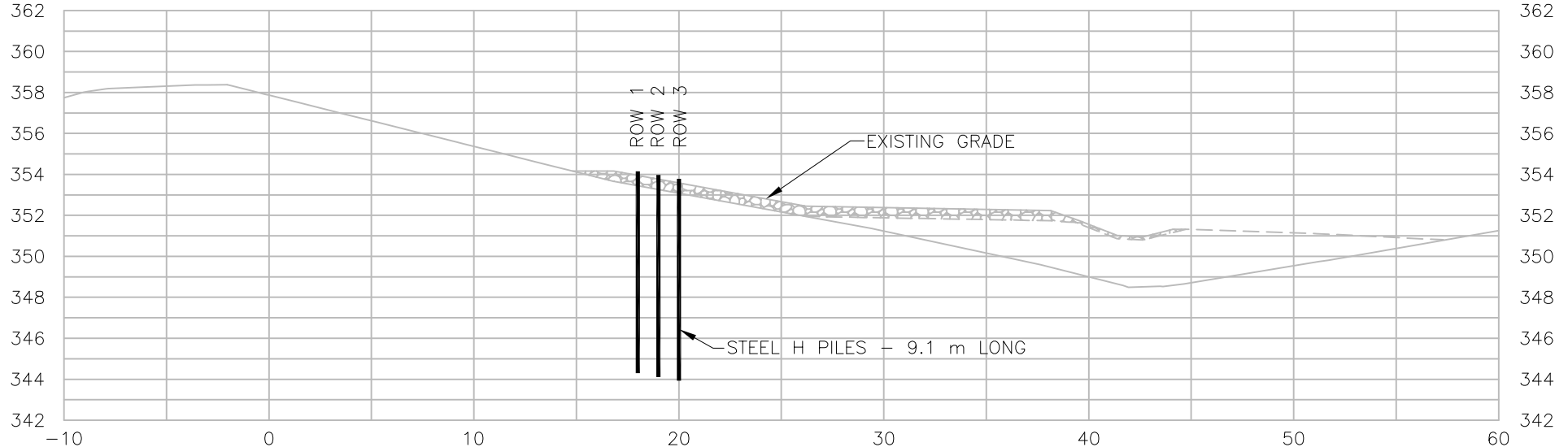
2	FOR FINAL REPORT	2008-11-03	WH
1	NORTH DITCH REMOVED & GRADING CHANGE	07/09/08	W.H.
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:	DITCH INFILLING WITH EXCAVATED MATERIAL
PROJECT:	STAGE ONE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTIGUIA, ONTARIO

 TBT ENGINEERING CONSULTING GROUP CLIENT: MTO	CONT No. 200-6270 GWP No. 6025-08-00	DRAWN BY: T.B. APPROVED BY: G.M. SCALE: AS SHOWN	PROJECT NO. 08-011-2 DATE: JULY 7, 2008 DRAWING 1-4
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NOTE: PILES TO BE ALIGNED IN FIELD AS SHOWN




TYPICAL SECTION

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


NO	DESCRIPTION	DATE	APP'V
2	FOR FINAL REPORT	2008-11-03	WH
1	ISSUED FOR TENDER	2008-07-22	WH
0	FOR REVIEW	2008-07-21	WH

DWG. TITLE: **PILING PLAN**

PROJECT: **STAGE TWO - EMBANKMENT STABILIZATION**
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



CONT No. 2008-6269
GWP No. 6023-08-00



CLIENT: Ministry of Transportation
Northwestern Region

DRAWN BY: **T.B.**
APPROVED BY: **G.M.**
SCALE: **AS SHOWN**

PROJECT NO. **08-011-2**
DATE: **JULY 15, 2008**
DRAWING **2-1**

CAD REF. NO.:

ROW 1		
POINT	NORTHING	EASTING
1	5377415.7	333814.2
2	5377416.4	333815.0
3	5377417.0	333815.7
4	5377417.6	333816.5
5	5377418.3	333817.3
6	5377418.9	333818.0
7	5377419.6	333818.8
8	5377420.2	333819.6
9	5377420.8	333820.3
10	5377421.5	333821.1
11	5377422.1	333821.9
12	5377422.8	333822.6
13	5377423.4	333823.4
14	5377424.0	333824.2
15	5377424.7	333825.0
16	5377425.3	333825.7
17	5377426.0	333826.5
18	5377426.6	333827.3
19	5377427.3	333828.0
20	5377427.9	333828.8
21	5377428.5	333829.6
22	5377429.2	333830.3
23	5377429.8	333831.1
24	5377430.5	333831.9
25	5377431.1	333832.6
26	5377431.7	333833.4
27	5377432.4	333834.2
28	5377433.0	333834.9
29	5377433.7	333835.7
30	5377434.3	333836.5
31	5377435.0	333837.2
32	5377435.6	333838.0
33	5377436.2	333838.8
34	5377436.9	333839.5
35	5377437.5	333840.3
36	5377438.2	333841.1
37	5377438.8	333841.8
38	5377439.4	333842.6
39	5377440.1	333843.4
40	5377440.7	333844.1
41	5377441.4	333844.9
42	5377442.0	333845.7
43	5377442.6	333846.4
44	5377443.3	333847.2
45	5377443.9	333848.0
46	5377444.6	333848.7
47	5377445.2	333849.5
48	5377445.9	333850.3

Note: Location points are in MTM Co-ordinate system.

PILE LOCATIONS

ROW 2		
POINT	NORTHING	EASTING
49	5377414.1	333816.2
50	5377414.8	333817.0
51	5377415.4	333817.7
52	5377416.0	333818.5
53	5377416.7	333819.3
54	5377417.3	333820.0
55	5377418.0	333820.8
56	5377418.6	333821.6
57	5377419.2	333822.3
58	5377419.9	333823.1
59	5377420.5	333823.9
60	5377421.2	333824.6
61	5377421.8	333825.4
62	5377422.5	333826.2
63	5377423.1	333826.9
64	5377423.7	333827.7
65	5377424.4	333828.5
66	5377425.0	333829.2
67	5377425.7	333830.0
68	5377426.3	333830.8
69	5377426.9	333831.5
70	5377427.6	333832.3
71	5377428.2	333833.1
72	5377428.9	333833.8
73	5377429.5	333834.6
74	5377430.1	333835.4
75	5377430.8	333836.1
76	5377431.4	333836.9
77	5377432.1	333837.7
78	5377432.7	333838.4
79	5377433.4	333839.2
80	5377434.0	333840.0
81	5377434.6	333840.7
82	5377435.3	333841.5
83	5377435.9	333842.3
84	5377436.6	333843.1
85	5377437.2	333843.8
86	5377437.8	333844.6
87	5377438.5	333845.4
88	5377439.1	333846.1
89	5377439.8	333846.9
90	5377440.4	333847.7
91	5377441.1	333848.4
92	5377441.7	333849.2
93	5377442.3	333850.0
94	5377443.0	333850.7
95	5377443.6	333851.5

ROW 3		
POINT	NORTHING	EASTING
96	5377411.9	333817.4
97	5377412.5	333818.2
98	5377413.2	333819.0
99	5377413.8	333819.7
100	5377414.4	333820.5
101	5377415.1	333821.3
102	5377415.7	333822.0
103	5377416.4	333822.8
104	5377417.0	333823.6
105	5377417.6	333824.3
106	5377418.3	333825.1
107	5377418.9	333825.9
108	5377419.6	333826.6
109	5377420.2	333827.4
110	5377420.9	333828.2
111	5377421.5	333828.9
112	5377422.1	333829.7
113	5377422.8	333830.5
114	5377423.4	333831.2
115	5377424.1	333832.0
116	5377424.7	333832.8
117	5377425.3	333833.5
118	5377426.0	333834.3
119	5377426.6	333835.1
120	5377427.3	333835.8
121	5377427.9	333836.6
122	5377428.6	333837.4
123	5377429.2	333838.1
124	5377429.8	333838.9
125	5377430.5	333839.7
126	5377431.1	333840.4
127	5377431.8	333841.2
128	5377432.4	333842.0
129	5377433.0	333842.7
130	5377433.7	333843.5
131	5377434.3	333844.3
132	5377435.0	333845.0
133	5377435.6	333845.8
134	5377436.2	333846.6
135	5377436.9	333847.3
136	5377437.5	333848.1
137	5377438.2	333848.9
138	5377438.8	333849.6
139	5377439.5	333850.4
140	5377440.1	333851.2
141	5377440.7	333851.9
142	5377441.4	333852.7
143	5377442.0	333853.5

Pile Driving Notes:

1.

All piles shall be HP 200x54. Steel H piles shall be according to CSA G40.20/G40.21 and shall be 350 W grade.
2.

Pile layout provided by the owner.
3.

Piles shall be installed vertically at the locations indicated and to the set or depth specified without being damaged.
4.

Pile lengths shown are maximum length required below existing grade.
5.

The contractor is responsible for supplying all equipment materials and labour, including a pile driving hammer of appropriate capacity (minimum 40 KJ).
6.

Piles;
7.

Piles shall not be forced into their proper position by the use of excessive manipulation. Pile damage due to excessive driving shall be avoided.
8.

The piles shall be driven to the length below grade indicated, or 1 m into very dense soils if encountered before this depth. Piles driven to a depth less than indicated (Note 6) are subject to acceptance by the owners representative. Hard driving is to be anticipated in the dense soil layer (see Borehole Logs).
9.

Piles must not be driven within 1.5 m of a pile driven within previous 4 hrs.
10.

The contractor shall submit, for information purposes only, one (1) week prior to construction:

a)

Type of equipment and hammer details including Contractors rated energy of the hammer, operating efficiency, weight of ram, anvil and helmet (min 40 KJ).

b)

Mill Certificates: The contractor shall submit to the Contract Administrator at the time of delivery one copy of the mill certificate, indicating that the steel meets the requirements for the specified standards for H-piles.
11.

Driven piles shall be cut after acceptance of owners representative. All piles to be cut off within 0.3 m above existing grade. All cut off material shall be removed from site.
12.

Borehole logs that describe the subsurface conditions for the project are attached.
13.

Piles shall be transported, stored and handled in such a manner that damage and distortion is prevented and that the strength and integrity are maintained. Materials shall be unloaded and stored within area protected by traffic control, and as approved by contract administrator. Material and equipment shall not be stored closer than 4 m to traffic.
14.

Piles are not to be spliced.
15.

Tolerances of Driven Piles:

a)

Cut off ±25 mm.

b)

Deviation from vertical not more than 2 in 50.

c)

The centre of the pile shall be within 200 mm of the specified location.

d)

All steel piles shall conform to a straightness tolerance of 2 mm maximum per metre of length.

DWG. TITLE:

PIILING DETAIL

PROJECT:

STAGE TWO - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTIGUIA, ONTARIO



CONT No. 2008-6269
GWP No. 6023-08-00



TBT ENGINEERING
CONSULTING GROUP

CLIENT:

Ministry of Transportation
Northwestern Region

DRAWN BY:

T.B.

APPROVED BY:

G.M.

SCALE:

N.T.S.

PROJECT NO.

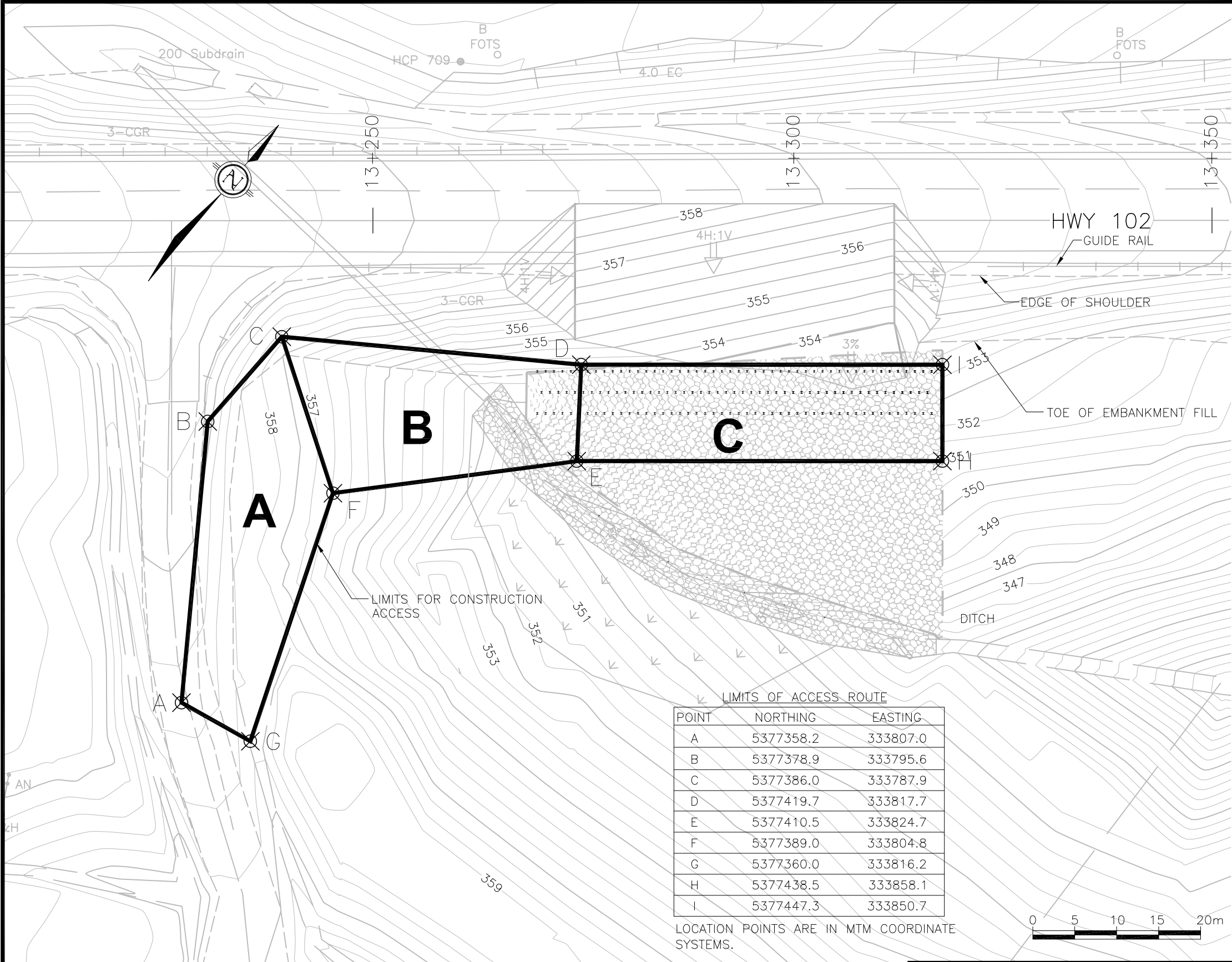
08-011-2

DATE:

JULY 15, 2008

DRAWING

2-2



CONSTRUCTION OF ACCESS ROUTE

- CONTRACTOR SHALL CONSTRUCT AN ACCESS ROUTE AS REQUIRED WITHIN THE AREAS INDICATED WITH THE FOLLOWING CONDITIONS:
AREA 'A':
 - MAXIMUM FILL HEIGHT = 1 m
 - FILL SLOPE TO BE CONSTRUCTED TO NO STEEPER THAN 2.5H:1VAREA 'B':
 - MAXIMUM FILL HEIGHT = 3 m
 - FILL SLOPES TO BE CONSTRUCTED TO NO STEEPER THAN 2.5H:1V
 - EXISTING 800 mm DIA. CULVERT TO BE EXTENDED AS REQUIRED. CULVERT IS IN POOR CONDITION DRAINAGE IS TO BE MAINTAINED.AREA 'C':
 - MAXIMUM FILL HEIGHT = 1 m
 - FILL SLOPE TO BE CONSTRUCTED TO NO STEEPER THAN 2.5H:1V
 - THE 4:1 SLOPE NORTH OF AREA C IS NOT TO BE USED FOR ACCESS.
- EXISTING TREES WITHIN AREA OF ACCESS ROUTE TO BE CLOSE CUT AND REMOVED. ALL EXCESS MATERIALS TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE MANAGED ACCORDING TO OPSS 180.
- SURFICAL ORGANICS/TOPSOIL TO BE STRIPPED AND REMOVED WITHIN AREA OF ACCESS ROUTE. ALL EXCESS MATERIALS TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE MANAGED ACCORDING TO OPSS 180.
- CUTTING INTO EXISTING SLOPE IS NOT PERMITTED. FILL OPERATIONS ONLY.
- FILL FOR ACCESS ROUTE OR TO FACILITATE SITE MOVEMENTS TO CONSIST OF "SELF COMPACTING" STONE WITH A MINIMUM OF 60% CRUSHED PARTICLES AND MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	% PASSING REQUIREMENTS
63 mm	100
19 mm	30-100
9.5 mm	0-55
4.75 mm	0-10
75 µm	0-2
- ACCESS ROUTE IS TO BE LEFT IN PLACE. DO NOT REMOVE.
- CONTRACTOR TO VISIT SITE AND ENSURE THAT THEIR PROPOSED ACCESS AREAS AND ASSOCIATED CONDITIONS ARE SUITABLE FOR THEIR EQUIPMENT AND/OR CONSTRUCTION REQUIREMENTS.

LIMITS OF ACCESS ROUTE		
POINT	NORTHING	EASTING
A	5377358.2	333807.0
B	5377378.9	333795.6
C	5377386.0	333787.9
D	5377419.7	333817.7
E	5377410.5	333824.7
F	5377389.0	333804.8
G	5377360.0	333816.2
H	5377438.5	333858.1
I	5377447.3	333850.7


LOCATION POINTS ARE IN MTM COORDINATE SYSTEMS.

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


NO	DESCRIPTION	DATE	APP'V
2	FOR FINAL REPORT	2008-07-22	WH
1	ISSUED FOR TENDER	2008-07-22	WH
0	FOR REVIEW	2008-07-21	WH

DWG. TITLE:
LIMITS FOR CONSTRUCTION ACCESS

PROJECT:
**STAGE TWO - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO**



CONT No. 2008-6269
GWP No. 6023-08-00



CLIENT:
Ministry of Transportation
Northwestern Region

DRAWN BY:
T.B.

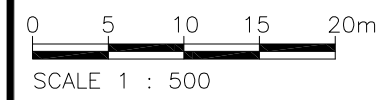
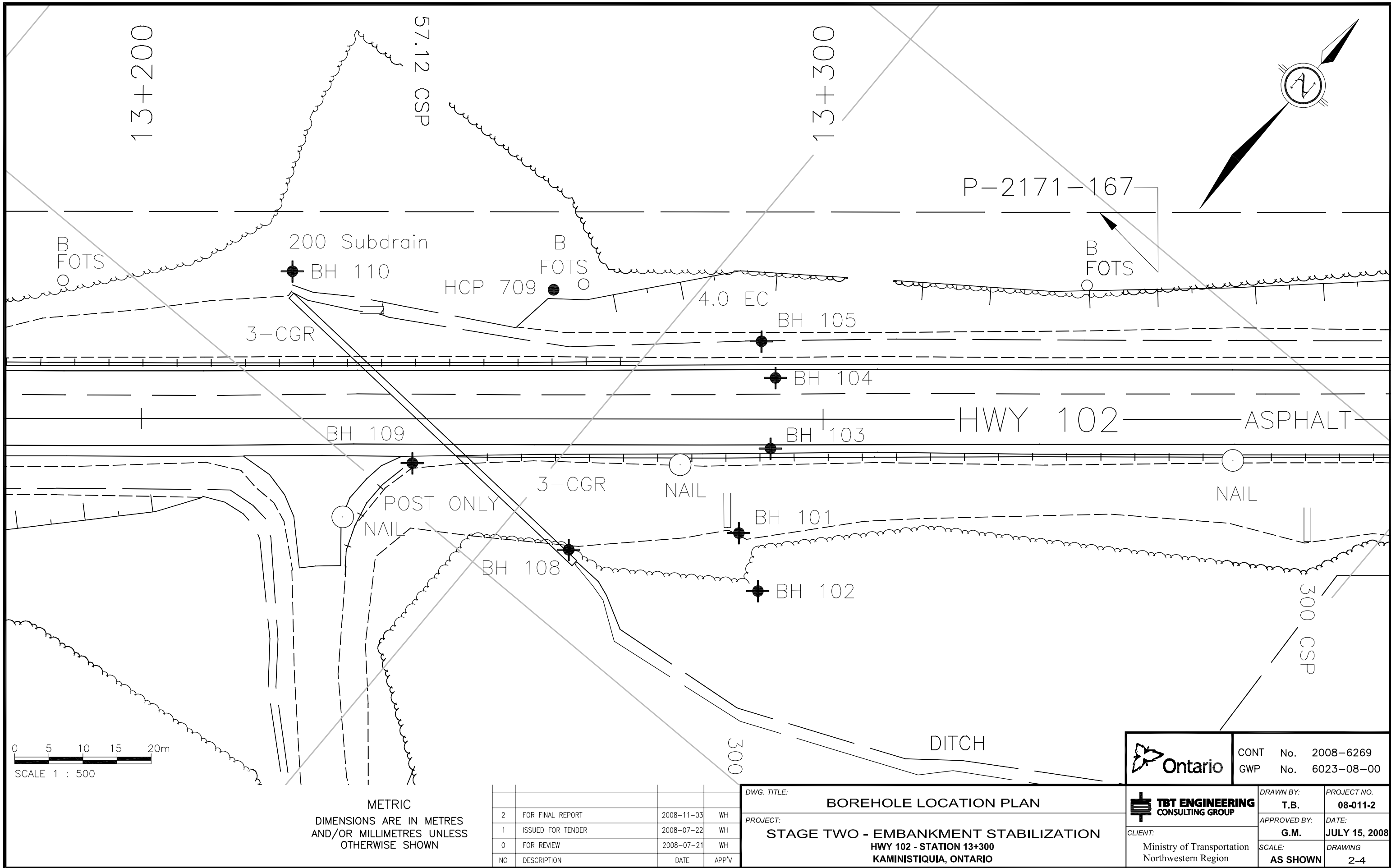
APPROVED BY:
G.M.

SCALE:
AS SHOWN

PROJECT NO.
08-011-2

DATE:
JULY 15, 2008

DRAWING
2-3




METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


2	FOR FINAL REPORT	2008-11-03	WH
1	ISSUED FOR TENDER	2008-07-22	WH
0	FOR REVIEW	2008-07-21	WH
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:
BOREHOLE LOCATION PLAN

PROJECT:
STAGE TWO - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



CONT No. 2008-6269
GWP No. 6023-08-00



CLIENT:
Ministry of Transportation
Northwestern Region

DRAWN BY:
T.B.

APPROVED BY:
G.M.

SCALE:
AS SHOWN

PROJECT NO.
08-011-2

DATE:
JULY 15, 2008

DRAWING
2-4

CAD REF. NO.:



Pile number	Top of Granular Sheeting Elevation from Stage 1 (m)	Top of Pile Elevation from Stage 2 Based on a 9.1 m Pile (m)
ROW 1		
1	353.5	353.8
2	353.6	353.9
3	353.7	354.0
4	353.8	354.1
5	353.9	354.2
6	353.9	354.2
7	353.9	354.2
8	353.9	354.2
9	353.9	354.2
10	353.9	354.2
11	353.8	354.1
12	353.8	354.1
13	353.8	354.1
14	353.8	354.1
15	353.7	354.0
16	353.7	354.0
17	353.7	354.0
18	353.7	354.0
19	353.6	353.9
20	353.6	353.9
21	353.6	353.9
22	353.6	353.9
23	353.6	353.9
24	353.6	353.9
25	353.6	353.9
26	353.6	353.9
27	353.6	353.9
28	353.6	353.9
29	353.6	353.9
30	353.5	353.8
31	353.5	353.8
32	353.4	353.7
33	353.4	353.7
34	353.4	353.7
35	353.3	353.6
36	353.3	353.6
37	353.3	353.6
38	353.3	353.6
39	353.3	353.6
40	353.2	353.5
41	353.2	353.5
42	353.2	353.5
43	353.2	353.5
44	353.3	353.6
45	353.3	353.6
46	353.3	353.6
47	353.3	353.6
48	353.3	353.6

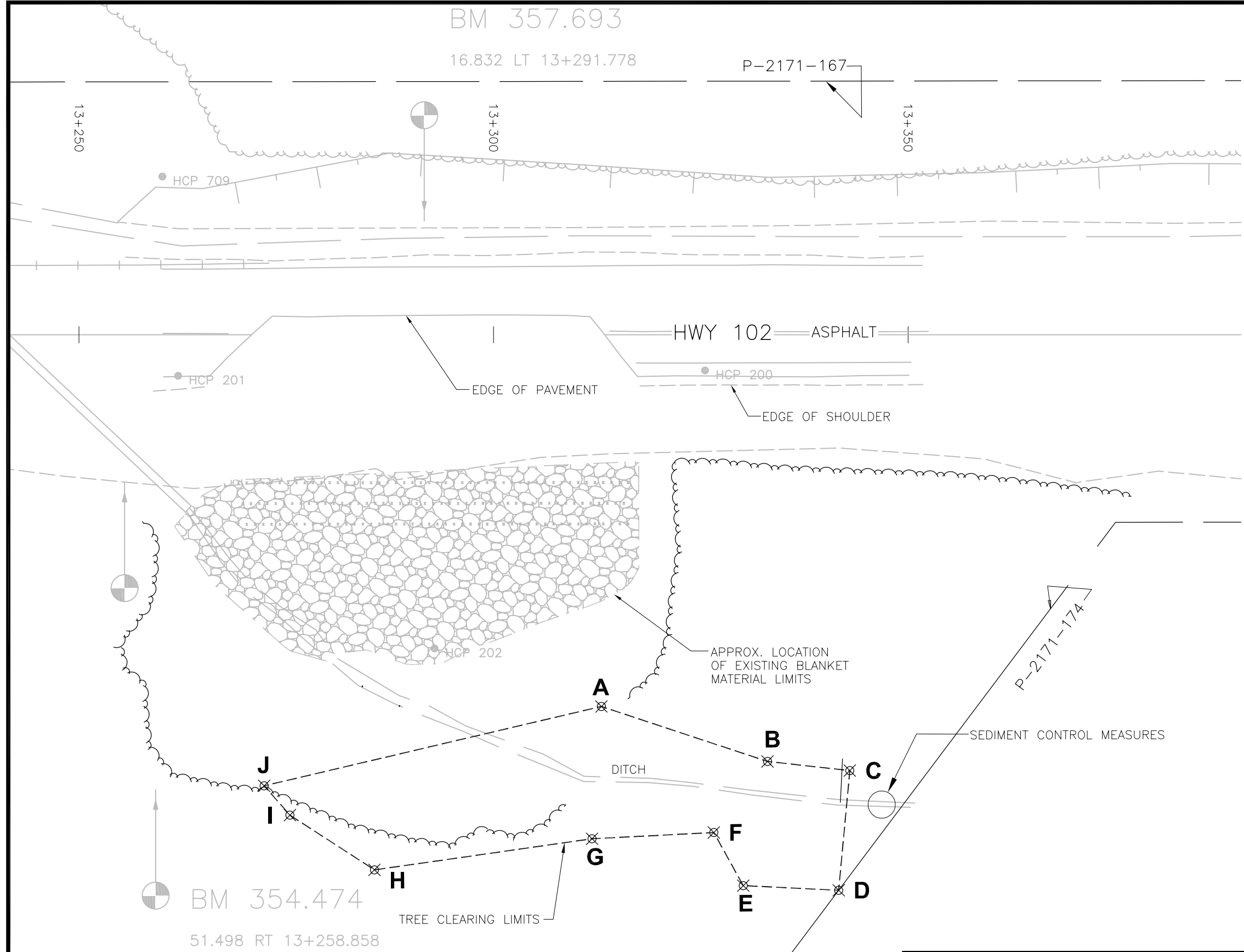
Pile number	Top of Granular Sheeting Elevation from Stage 1 (m)	Top of Pile Elevation from Stage 2 Based on a 9.1 m Pile (m)
ROW 2		
49	353.3	353.6
50	353.4	353.7
51	353.4	353.7
52	353.5	353.8
53	353.5	353.8
54	353.5	353.8
55	353.5	353.8
56	353.6	353.9
57	353.5	353.8
58	353.5	353.8
59	353.5	353.8
60	353.5	353.8
61	353.5	353.8
62	353.5	353.8
63	353.5	353.8
64	353.5	353.8
65	353.4	353.7
66	353.4	353.7
67	353.4	353.7
68	353.4	353.7
69	353.4	353.7
70	353.4	353.7
71	353.4	353.7
72	353.4	353.7
73	353.4	353.7
74	353.4	353.7
75	353.4	353.7
76	353.4	353.7
77	353.3	353.6
78	353.3	353.6
79	353.2	353.5
80	353.2	353.5
81	353.2	353.5
82	353.1	353.4
83	353.1	353.4
84	353.1	353.4
85	353.1	353.4
86	353.1	353.4
87	353.0	353.3
88	353.0	353.3
89	353.0	353.3
90	353.0	353.3
91	353.0	353.3
92	353.0	353.3
93	353.0	353.3
94	353.0	353.3
95	353.0	353.3

Pile number	Top of Granular Sheeting Elevation from Stage 1 (m)	Top of Pile Elevation from Stage 2 Based on a 9.1 m Pile (m)
ROW 3		
96	353.1	353.4
97	353.1	353.4
98	353.2	353.5
99	353.2	353.5
100	353.2	353.5
101	353.3	353.6
102	353.3	353.6
103	353.3	353.6
104	353.3	353.6
105	353.3	353.6
106	353.3	353.6
107	353.3	353.6
108	353.3	353.6
109	353.3	353.6
110	353.3	353.6
111	353.3	353.6
112	353.3	353.6
113	353.2	353.5
114	353.2	353.5
115	353.2	353.5
116	353.2	353.5
117	353.2	353.5
118	353.2	353.5
119	353.2	353.5
120	353.1	353.4
121	353.1	353.4
122	353.1	353.4
123	353.1	353.4
124	353.1	353.4
125	353.1	353.4
126	353.0	353.3
127	353.0	353.3
128	353.0	353.3
129	353.0	353.3
130	352.9	353.2
131	352.9	353.2
132	352.9	353.2
133	352.9	353.2
134	352.9	353.2
135	352.8	353.1
136	352.8	353.1
137	352.8	353.1
138	352.8	353.1
139	352.8	353.1
140	352.8	353.1
141	352.8	353.1
142	352.8	353.1
143	352.8	353.1

1	FOR FINAL REPORT	2008-11-03	WH
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:	PILING ELEVATIONS
PROJECT:	STAGE TWO - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTIGUIA, ONTARIO

	CONT No. 2008-6269
	GWP No. 6023-08-00
	DRAWN BY: T.B. PROJECT NO. 08-011-2
	APPROVED BY: D.V. DATE: AUG 19, 2008
	CLIENT: Ministry of Transportation Northwestern Region
	SCALE: N.T.S. DRAWING 2-5



- NOTES:
1. INSTALL SEDIMENT CONTROL MEASURES AT LOCATION INDICATED. AS A MINIMUM, A SILT CURTAIN IS TO BE INSTALLED AND MAINTAINED ACROSS THE EXISTING DITCH. ADDITIONAL MEASURES MAY BE REQUIRED PENDING INSPECTION.
 2. CLOSE CUT AND REMOVE ALL TREES WITHIN LIMITS INDICATED. TREES TO BE LEFT ON SITE OUTSIDE OF TREE CUTTING LIMITS AS PER DIRECTION OF MTO.



TREE CLEARING POINTS		
POINT	NORTHING	EASTING
A	5377423.070	333865.097
B	5377430.818	333884.731
C	5377436.327	333893.059
D	5377424.385	333901.278
E	5377417.441	333892.075
F	5377420.085	333885.250
G	5377410.089	333874.447
H	5377390.392	333856.703
I	5377388.932	333844.641
J	5377389.650	333839.992

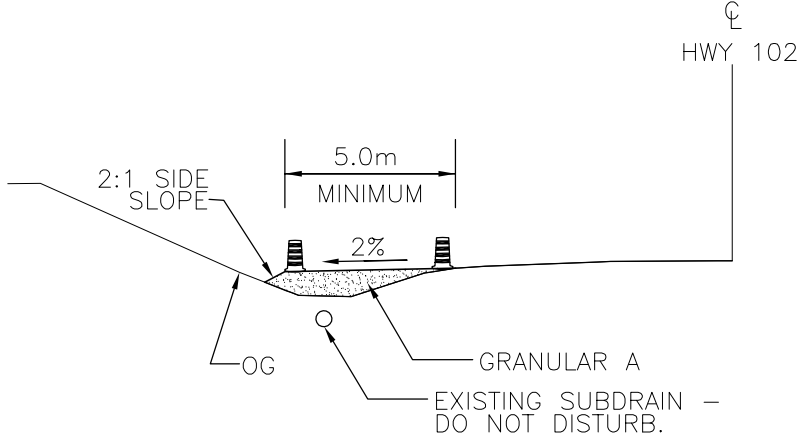
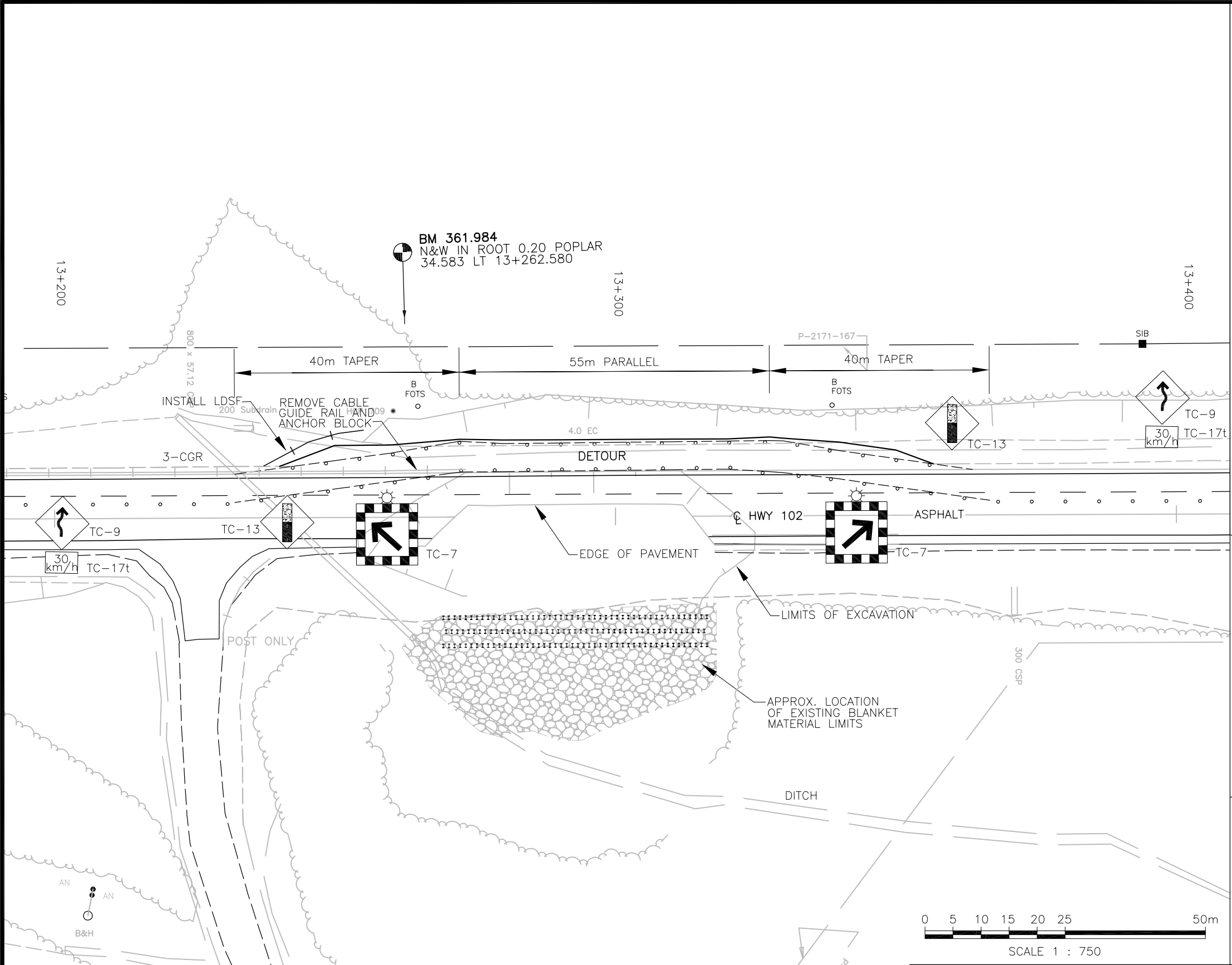
SURVEY CONDUCTED BY TBTE ENGINEERING ON JULY 31, 2008.

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

NO	DESCRIPTION	DATE	APP'V
1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH

DWG. TITLE:	TREE CUTTING		
PROJECT:	STAGE THREE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTIGUIA, ONTARIO		

	CONT No.	200-6270	
	GWP No.	6025-08-00	
 CLIENT: Ministry of Transportation Northwestern Region	DRAWN BY:	T.B.	PROJECT NO. 08-011-2
	APPROVED BY:	G.M.	DATE: AUGUST 2008
	SCALE:	AS SHOWN	DRAWING 3-1



TYPICAL DETOUR CONSTRUCTION

* AS REQUIRED STRIP FORESLOPE AND DITCH BOTTOM FOR ONLY ORGANICS. DO NOT DISTURB/STRIP BACKSLOPE.

NOTES:

1. REMOVE/SALVAGE ANCHOR BLOCK AND GUIDE RAIL TO ALLOW FOR CONSTRUCTION OF DETOUR. LEAVE REMAINING POSTS IN GROUND.
2. CONSTRUCT DETOUR AS PER OPSS 314 AND 501.
3. INSTALL ENVIRONMENTAL MEASURES LIGHT DUTY SILT FENCE (LDSF) AS PER OPSS 577.
4. TC-54's AND SIGNS ARE REPRESENTATIVE ONLY. CONTRACTOR IS RESPONSIBLE FOR ADHERENCE TO ONTARIO TRAFFIC MANUAL - BOOK 7.
5. ENSURE ADVISORY SPEED REDUCTION SIGNS ARE IN PLACE.

ESTIMATED MATERIAL QUANTITIES:

GRANULAR A - 350 m³
GUIDE RAIL REMOVAL - 42 m
LDSF - 20 m



CONT No. 2008-6270
WP No. 6025-08-00



CLIENT:
Ministry of Transportation
Northwestern Region

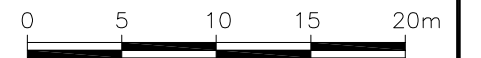
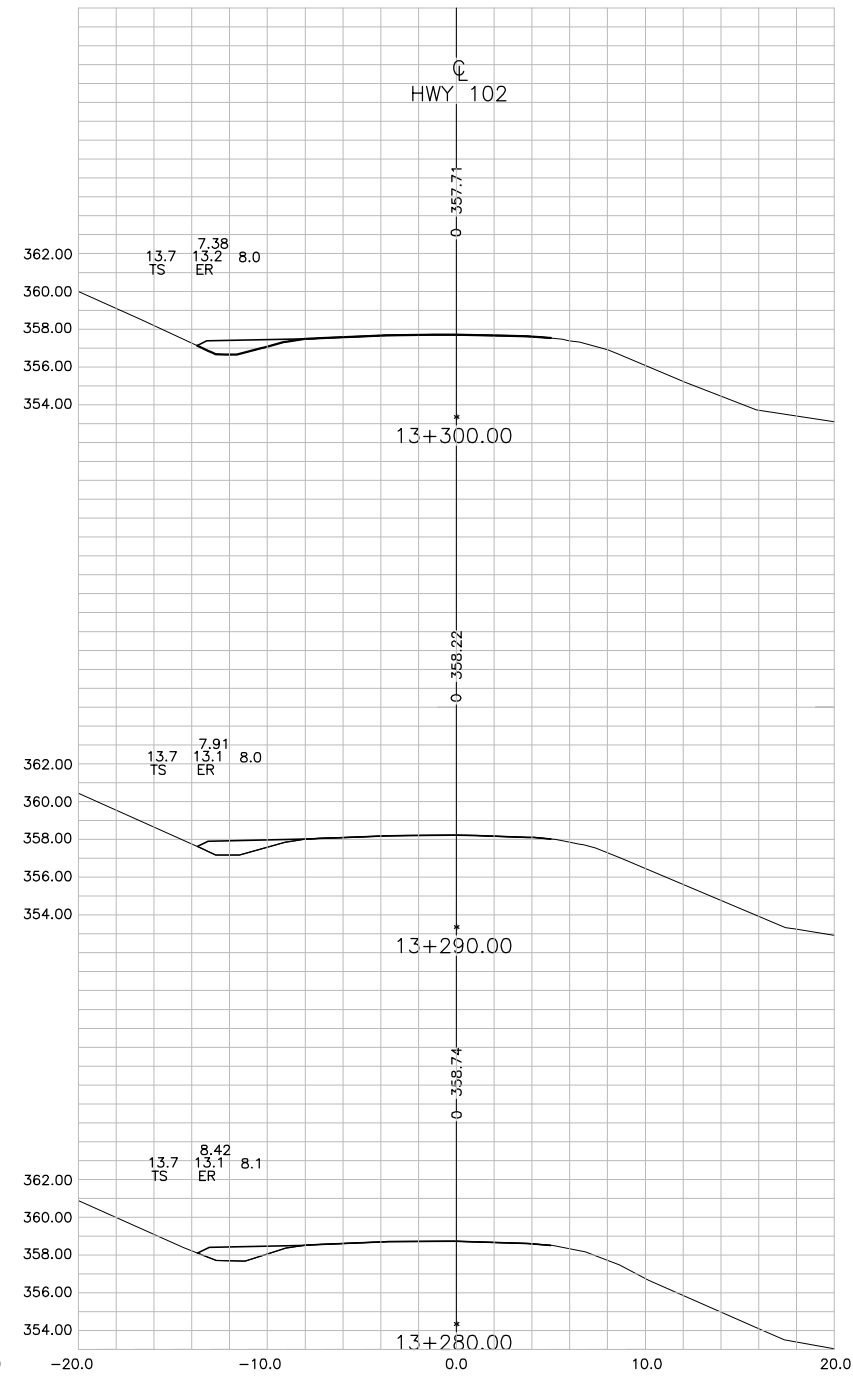
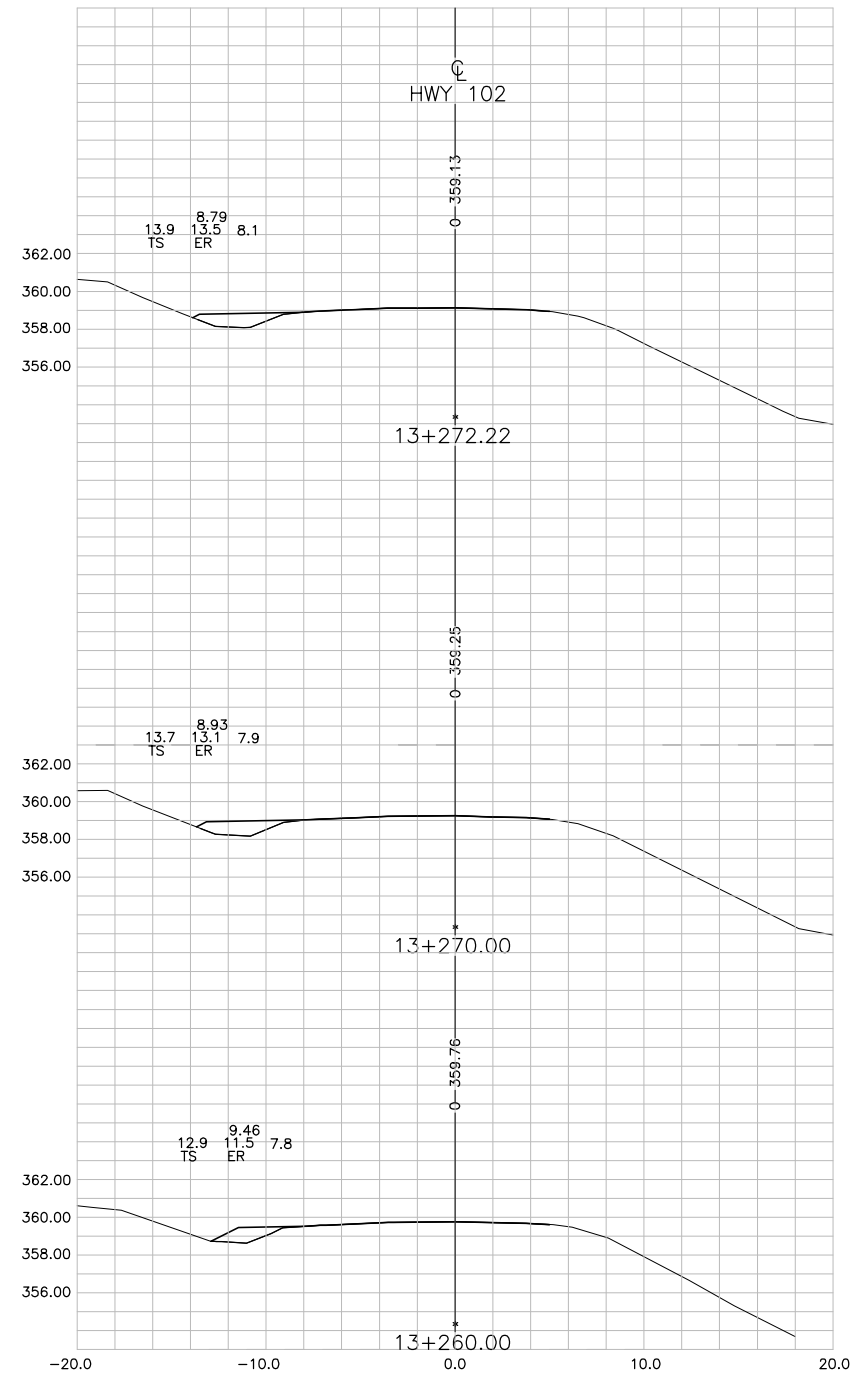
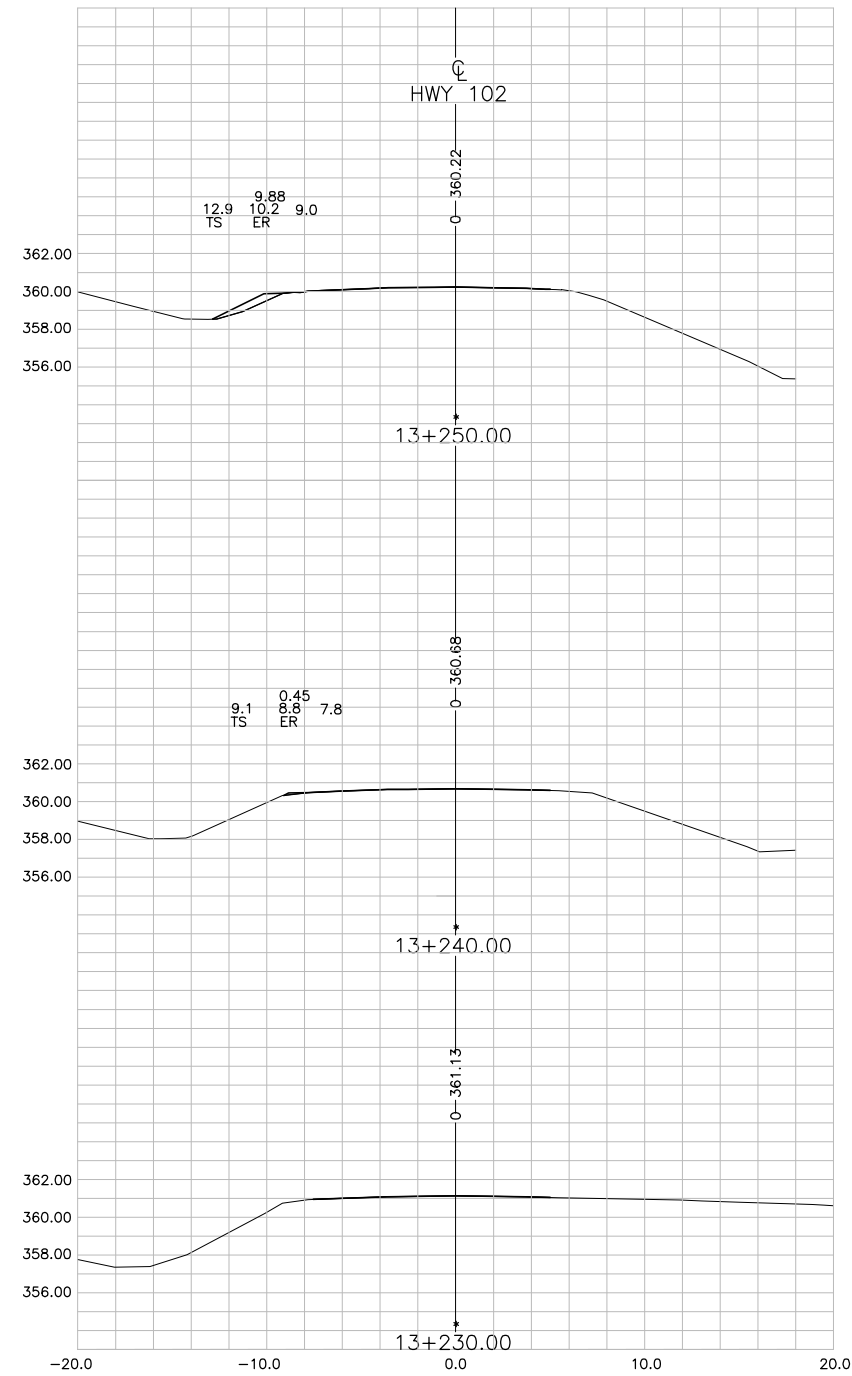
DRAWN BY: M.M.
APPROVED BY: G.T.
SCALE: AS SHOWN
PROJECT NO. 07-084-1
DATE: AUGUST 2008
DRAWING 3-2

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

NO	DESCRIPTION	DATE	APP'V
1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH

DWG. TITLE:
DETOUR DETAILS

PROJECT:
STAGE THREE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



SCALE 1 : 400

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:	DETOUR DETAILS - CROSS SECTIONS
PROJECT:	STAGE THREE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTQUIA, ONTARIO

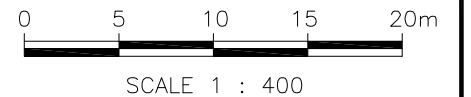
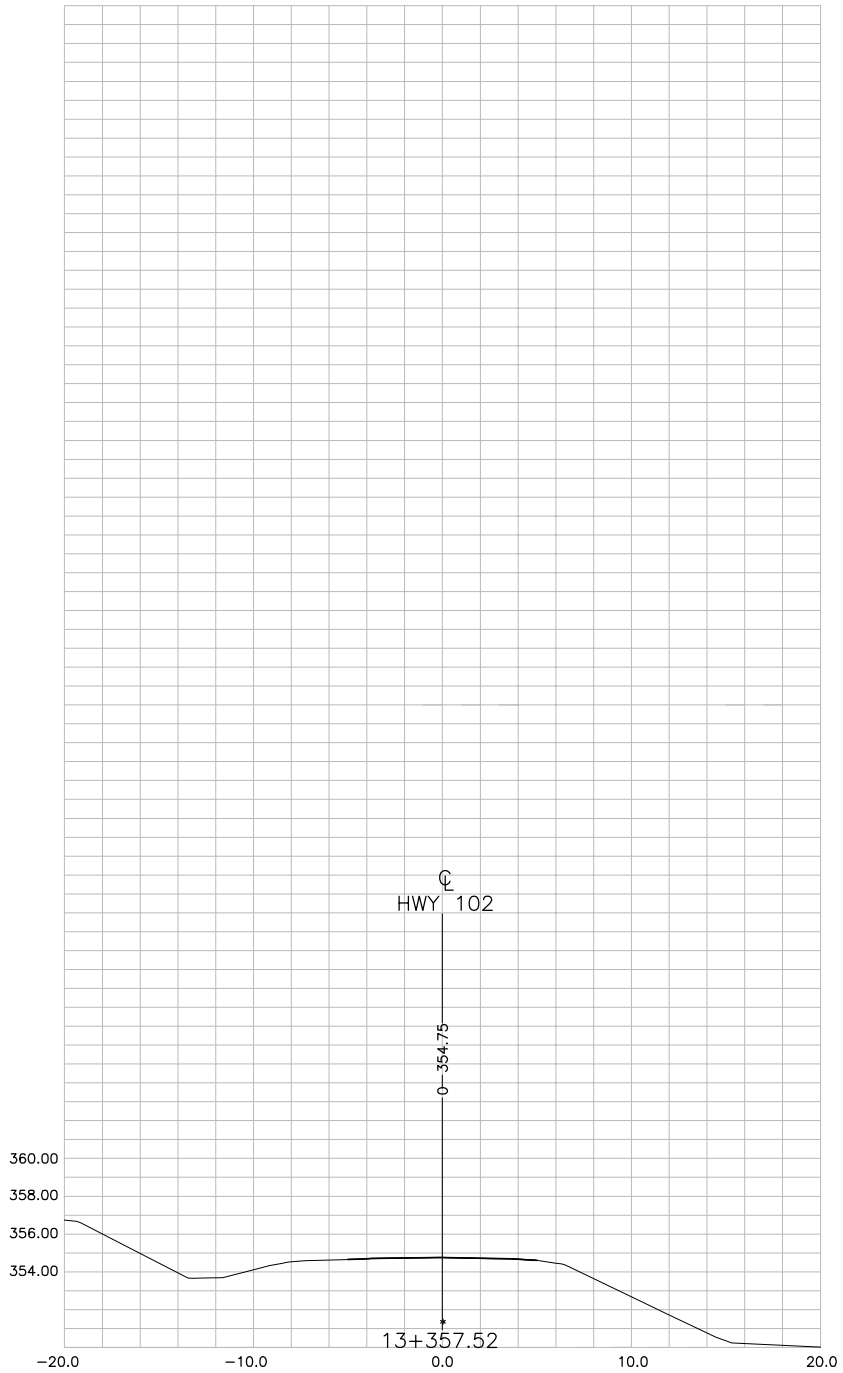
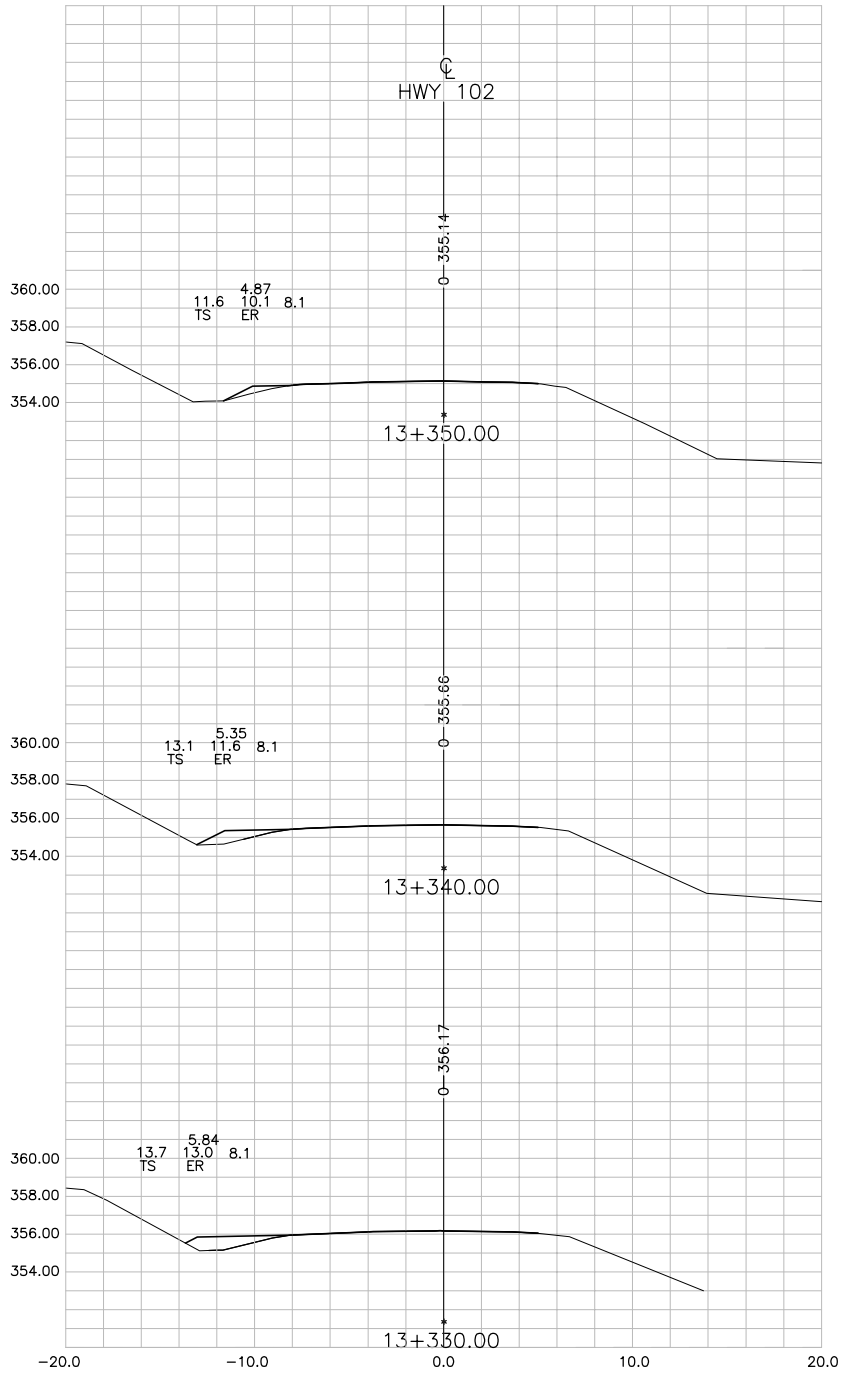
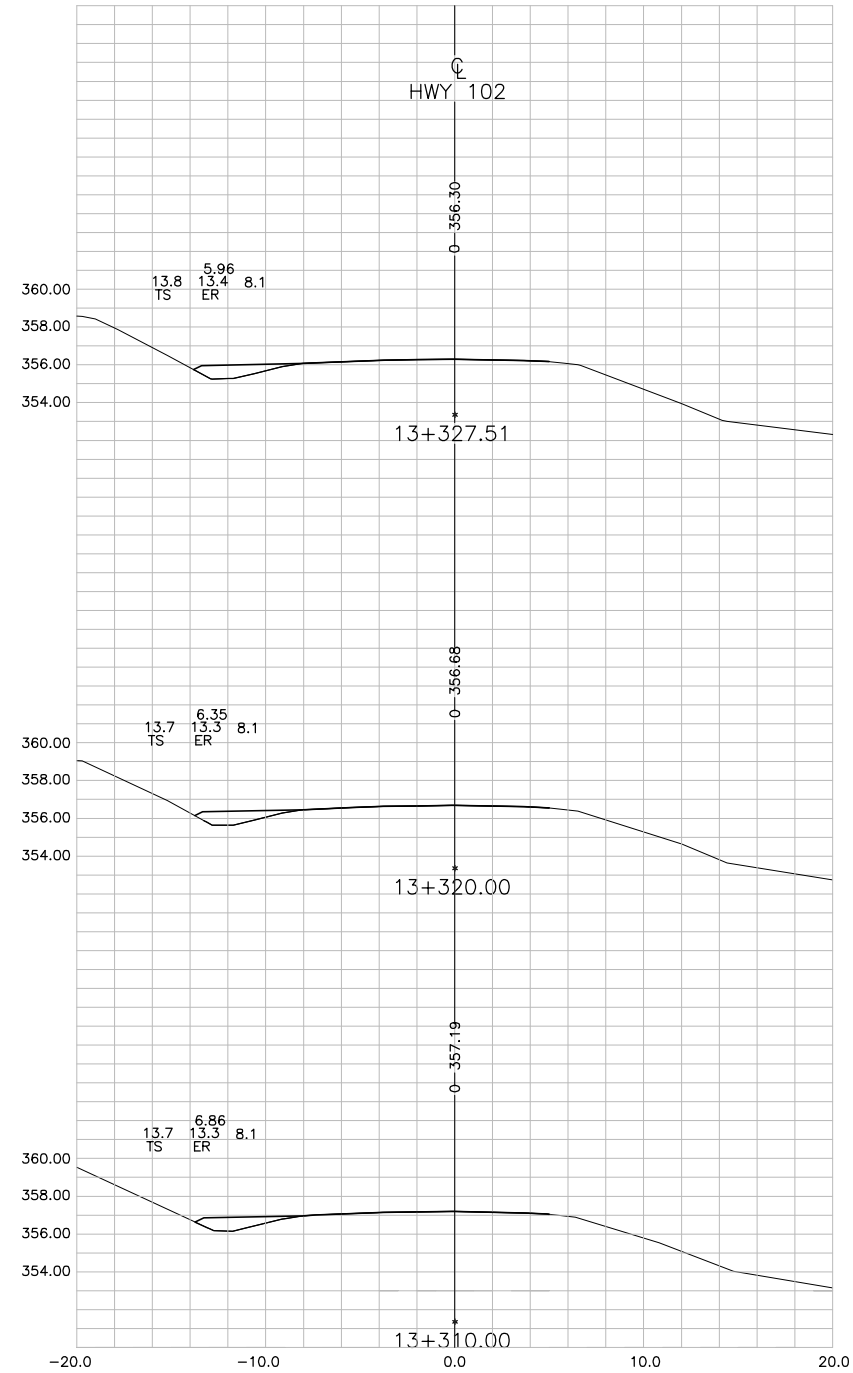


CONT No. 2008-6270
WP No. 6025-08-00



CLIENT:
Ministry of Transportation
Northwestern Region


DRAWN BY:	PROJECT NO.
M.M.	07-084-1
APPROVED BY:	DATE:
G.T.	AUGUST 2008
SCALE:	DRAWING
1:400	3-3




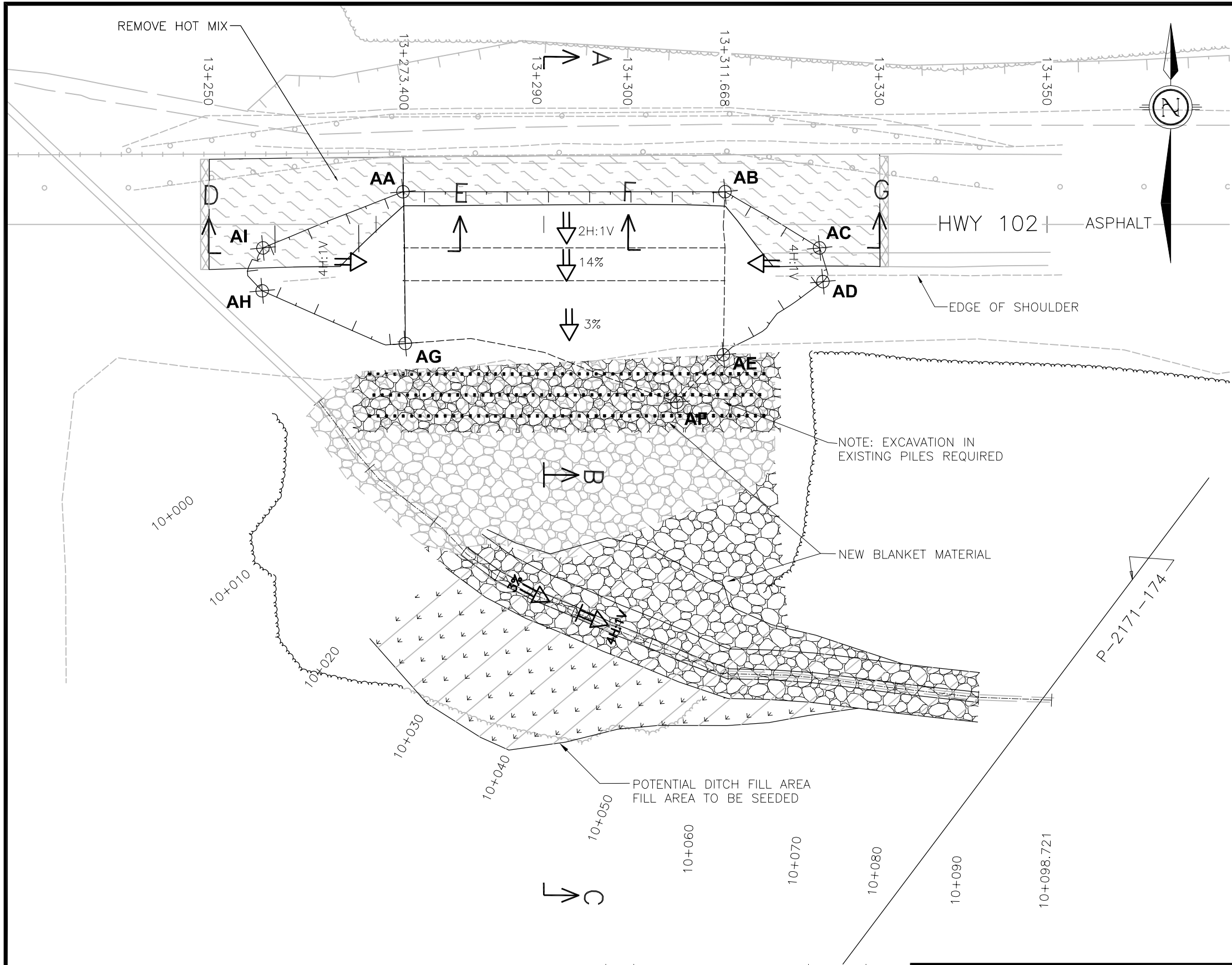
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AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH
NO	DESCRIPTION	DATE	APP'V

DWG. TITLE:	DETOUR DETAILS - CROSS SECTIONS
PROJECT:	STAGE THREE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTQUIA, ONTARIO

 Ontario	CONT No. 2008-6270
	WP No. 6025-08-00

 TBT ENGINEERING CONSULTING GROUP	DRAWN BY: M.M.	PROJECT NO. 07-084-1
	APPROVED BY: G.T.	DATE: AUGUST 2008
	SCALE: 1:400	DRAWING 3-4
	CLIENT: Ministry of Transportation Northwestern Region	



- NOTES:
- EXCAVATED MATERIALS TO BE USED FOR DITCH INFILLING AS PER DRAWING 3-8.
 - WHERE CLAY SUBGRADE IS EXPOSED WITHIN EXCAVATION LIMITS COVER WITH 0.5 m THICKNESS OF GRANULAR BLANKET MATERIAL.

CUT LIMITS		
POINT	NORTHING	EASTING
AA	5377434.985	333803.375
AB	5377459.571	333832.791
AC	5377461.650	333845.739
AD	5377458.823	333848.627
AE	5377444.523	333845.102
AF	5.77436.628	333844.475
AG	5377421.252	333815.124
AH	5377415.136	333797.989
AI	5377419.110	333794.776


DITCH FILL AREA CENTRELINE		
STATION	NORTHING	EASTING
10+025	5377406.732	333836.338
10+030	5377407.039	333841.317
10+040	5377409.593	333850.964
10+050	5377412.537	333860.517
10+060	5377415.684	333869.924
10+070	5377421.727	333877.885
10+080	5377427.122	333886.303
10+090	5377432.645	333894.638

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


NO	DESCRIPTION	DATE	APP'V
1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH

DWG. TITLE: EXCAVATION AND TOE FILL AREA

PROJECT: STAGE THREE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



CONT No. 200-6270
GWP No. 6025-08-00

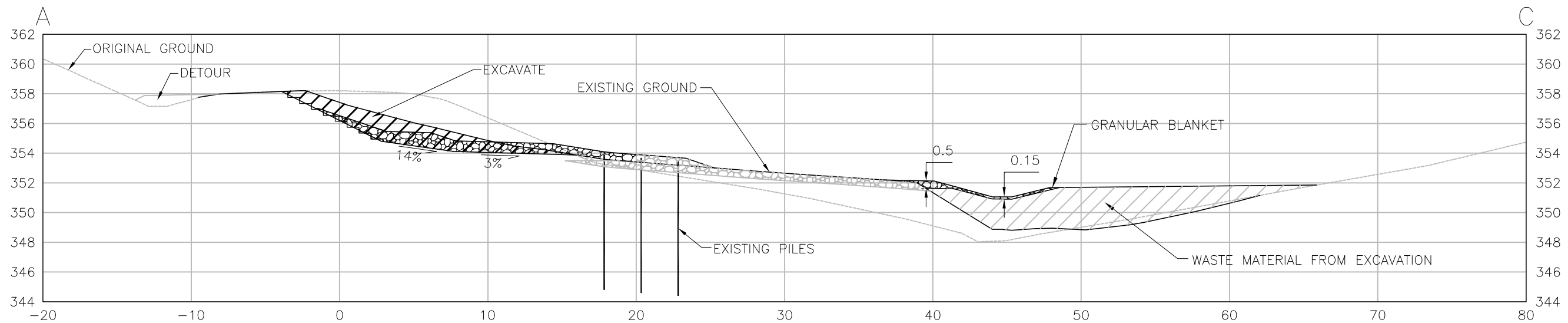


CLIENT: Ministry of Transportation
Northwestern Region

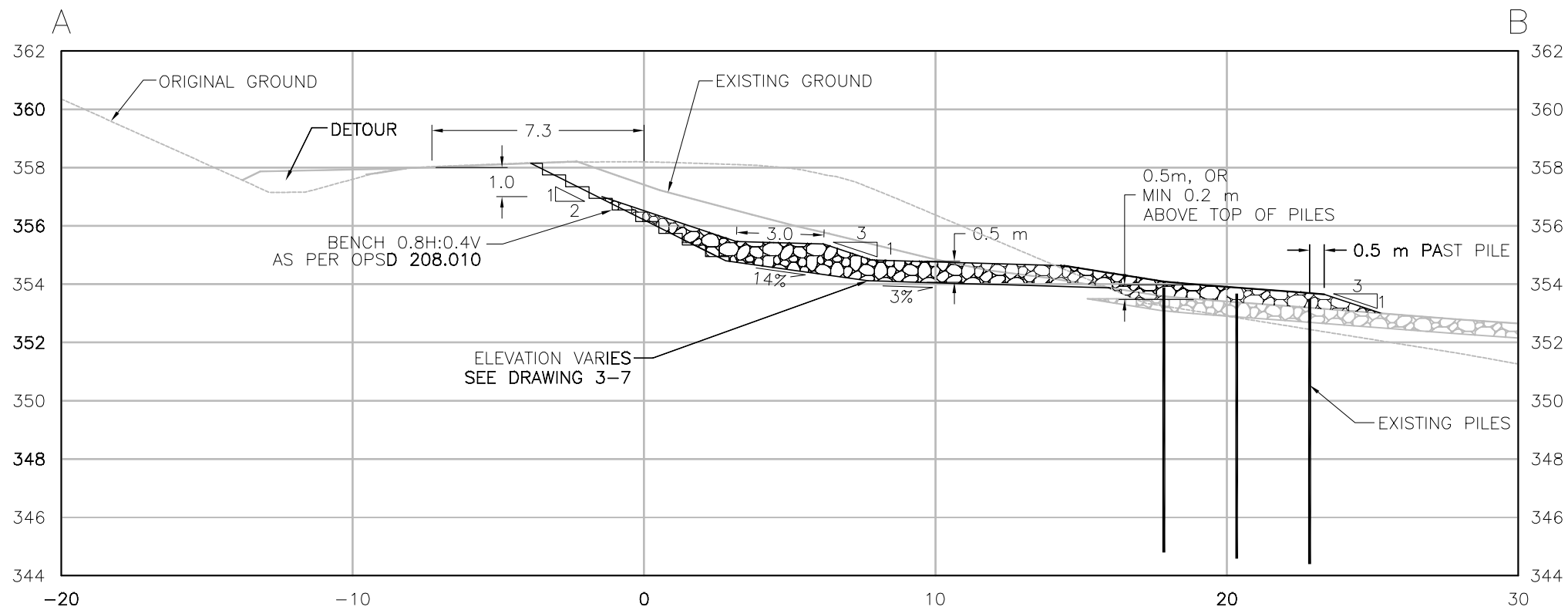
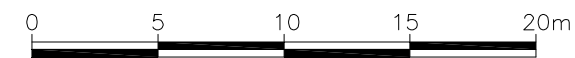
DRAWN BY: T.B.
APPROVED BY: G.M.
SCALE: AS SHOWN

PROJECT NO. 08-011-2
DATE: AUGUST 2008
DRAWING 3-5

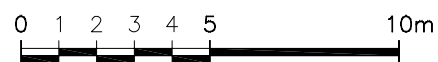
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SECTION A-C





SECTION A-B

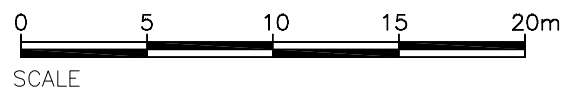
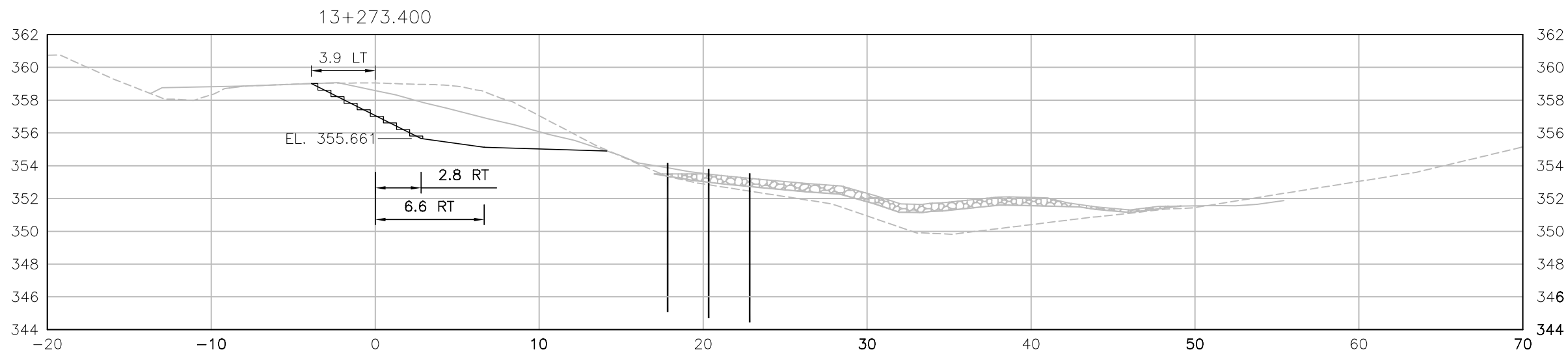
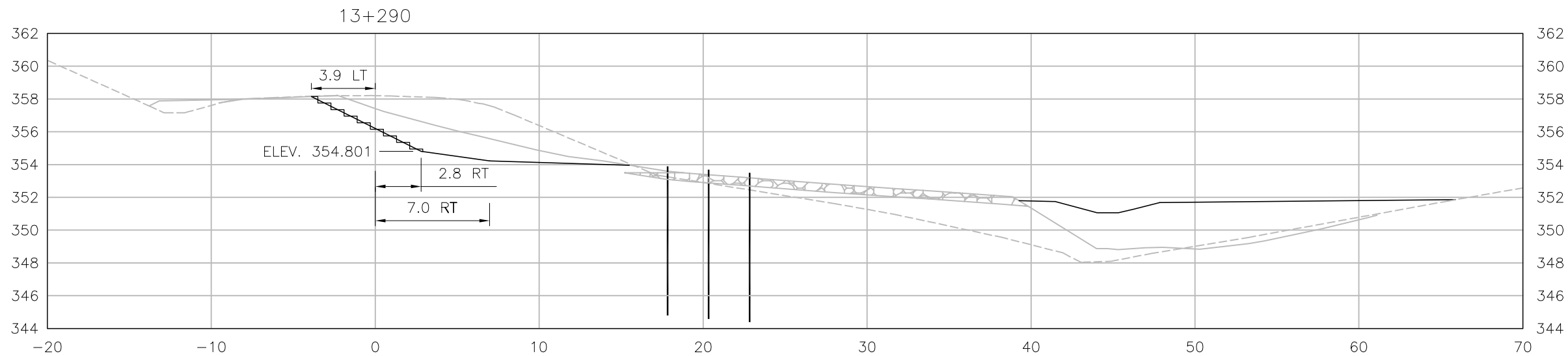
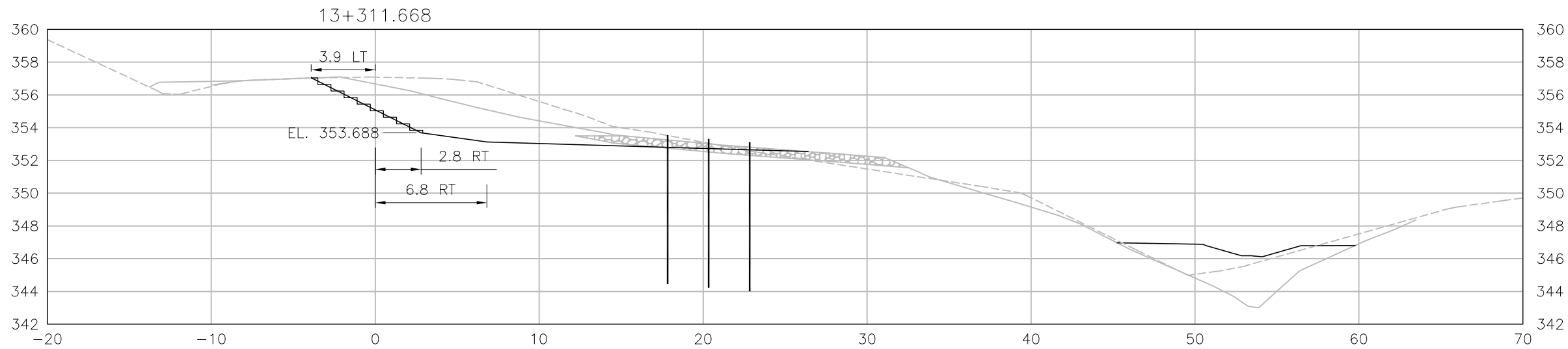


METRIC
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AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

NO	DESCRIPTION	DATE	APP'V
1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH

DWG. TITLE:	SLOPE CUT & DITCH FILL & GRANULAR BLANKET SECTIONS
PROJECT:	STAGE THREE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTIGUIA, ONTARIO

  CLIENT: Ministry of Transportation Northwestern Region	CONT No. 200-6270 GWP No. 6025-08-00	DRAWN BY: T.B.	PROJECT NO. 08-011-2
		APPROVED BY: G.M.	DATE: AUGUST 2008
		SCALE: AS SHOWN	DRAWING 3-6



METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

1	FOR FINAL REPORT	2008-11-03	WH	
0	FOR APPROVAL	2008-08-29	WH	
NO	DESCRIPTION	DATE	APP'V	

DWG. TITLE:

ELEVATIONS FOR BOTTOM OF 3:1 SLOPE

PROJECT:

STAGE THREE - EMBANKMENT STABILIZATION

HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



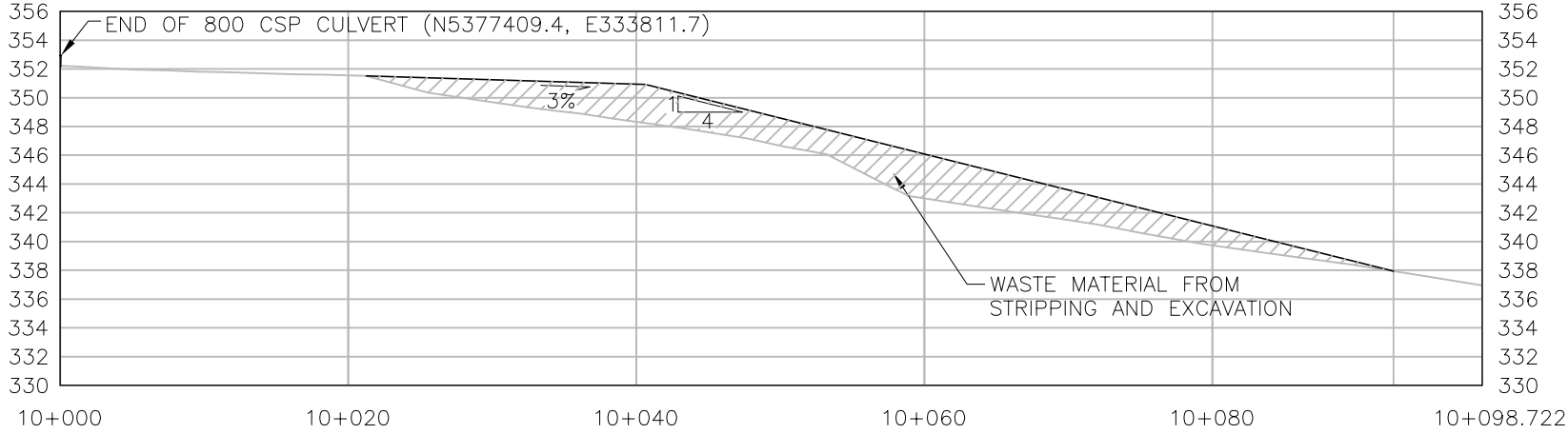
CONT No. 200-6270
GWP No. 6025-08-00



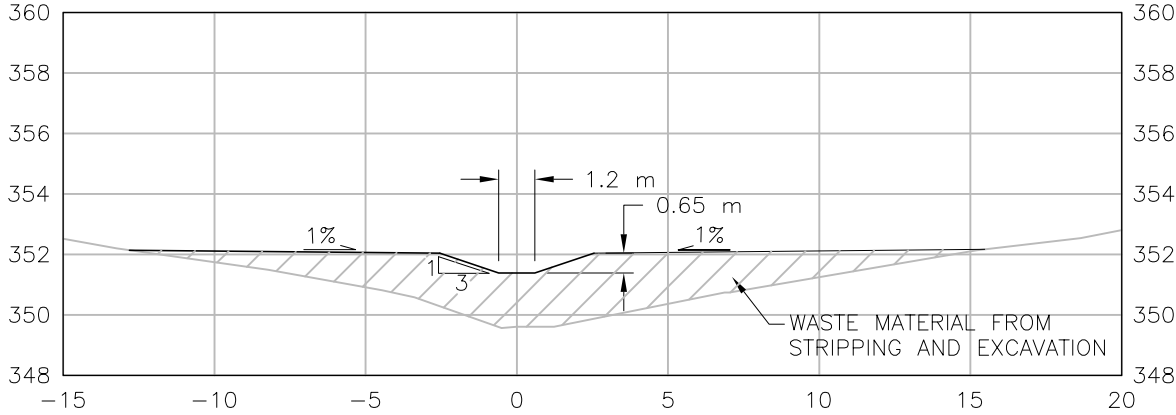
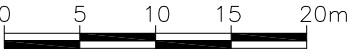
CLIENT:
Ministry of Transportation
Northwestern Region

DRAWN BY:	PROJECT NO.
T.B.	08-011-2
APPROVED BY:	DATE:
G.M.	AUGUST 2008
SCALE:	DRAWING
AS SHOWN	3-7

CAD REF. NO.:



PROFILE ALONG DITCH FILL AREA CENTRELINE



DETAIL 'B' - TYPICAL CROSS SECTION FOR DITCH





NOTES:

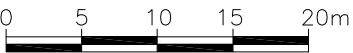
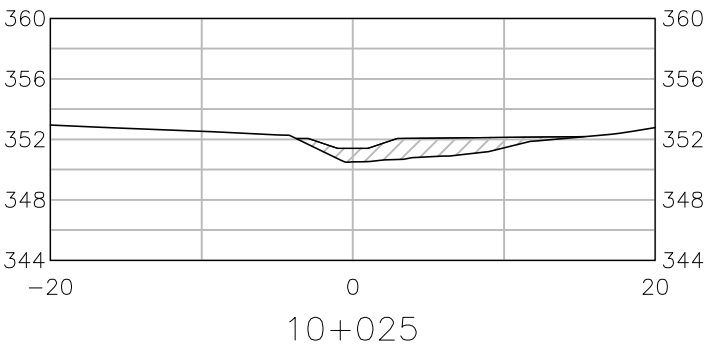
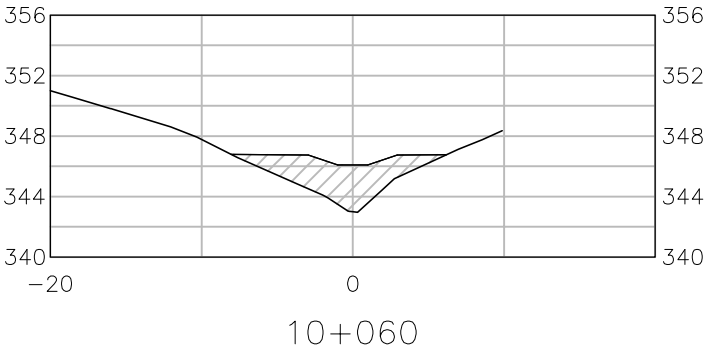
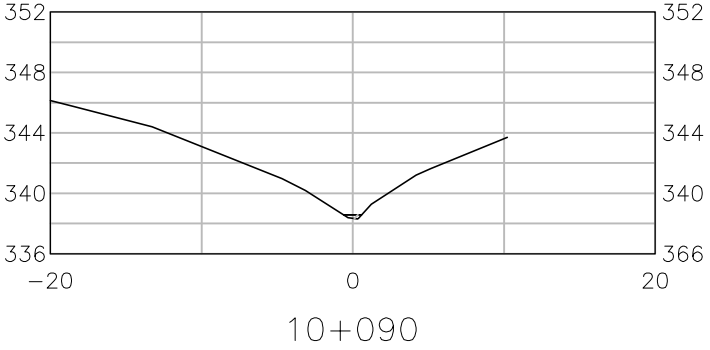
- EXCAVATED MATERIAL TO BE PLACED WITHIN EXISTING DITCH TO LIMITS INDICATED ON DRAWING 3-5.
- PERFERRED INFILLING TO CONSIST OF ASPHALT MATERIAL FIRST FOLLOWED BY GRANULAR FILL FROM EMBANKMENT CUT.

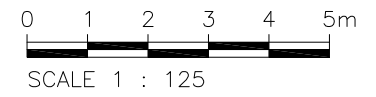
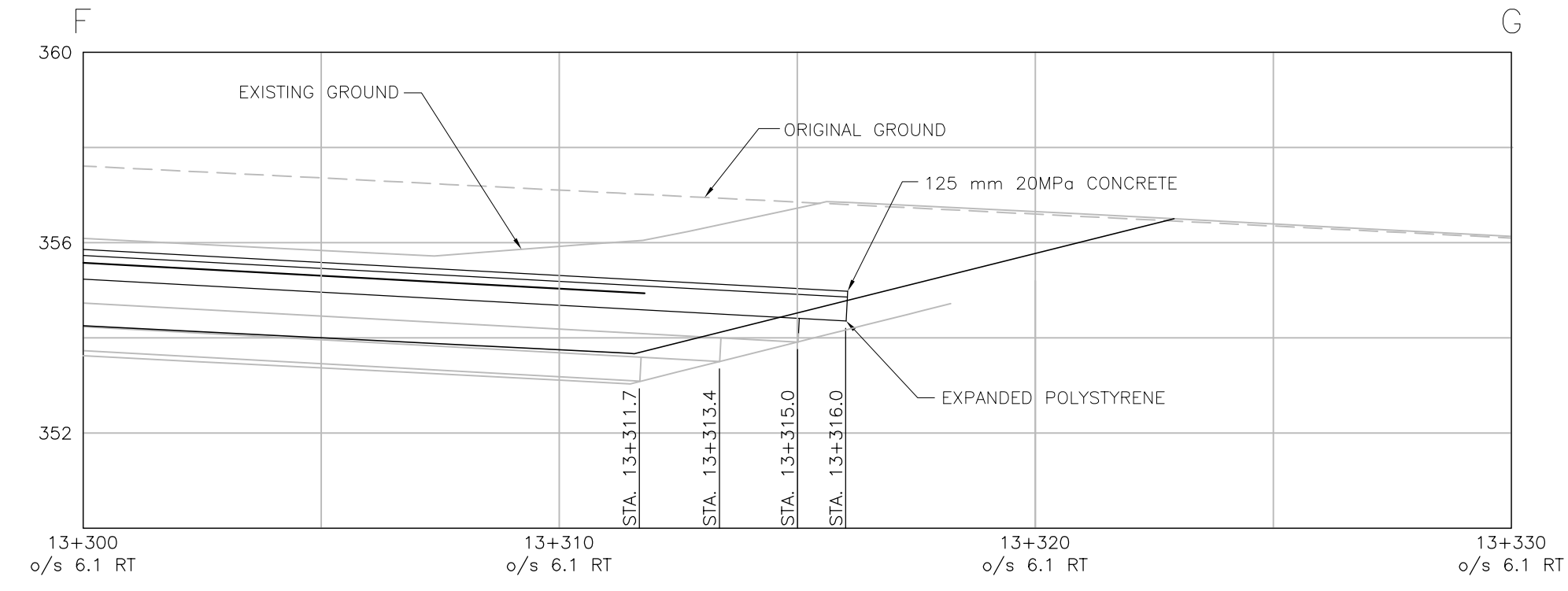
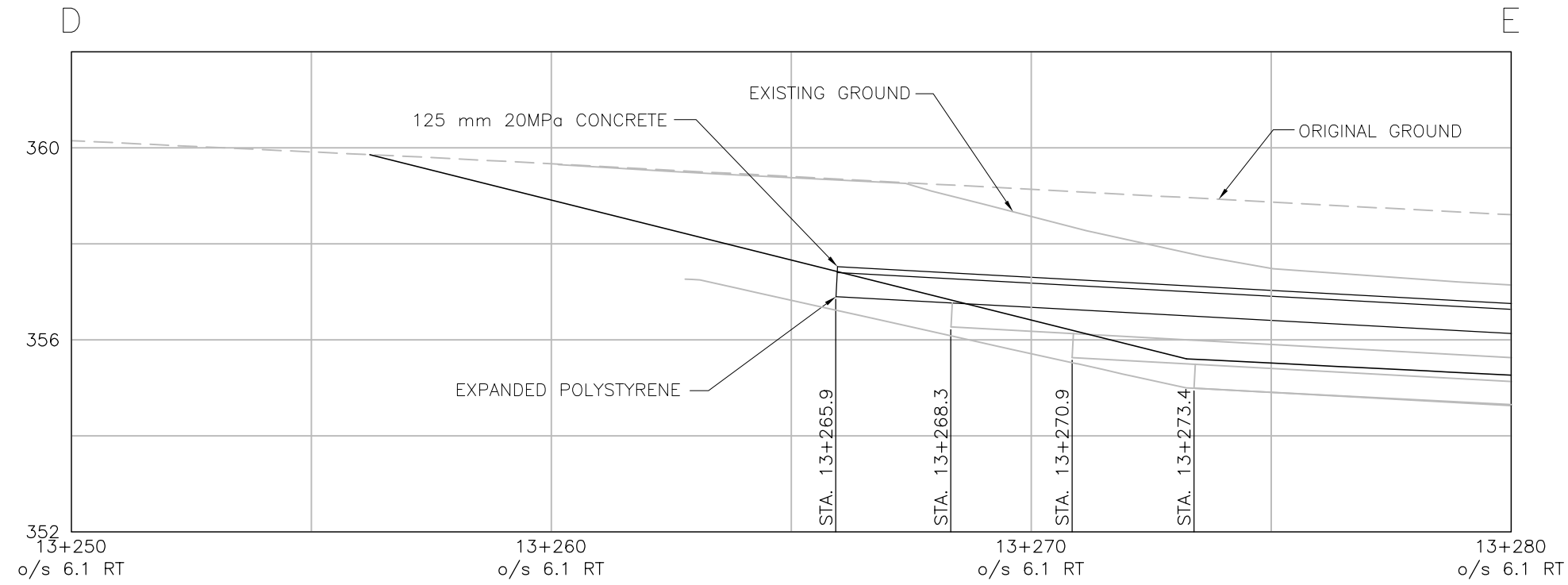
METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

NO	DESCRIPTION	DATE	APP'V
1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH

DWG. TITLE:	DITCH INFILL CROSS-SECTIONS
PROJECT:	STAGE THREE - EMBANKMENT STABILIZATION HWY 102 - STATION 13+300 KAMINISTQUIA, ONTARIO

	CONT No. 200-6270	DRAWN BY: T.B.	PROJECT NO. 08-011-2
	GWP No. 6025-08-00		
	APPROVED BY: G.M.	DATE: AUGUST 2008	DRAWING 3-8
	SCALE: AS SHOWN		






SECTION F-G

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN


1	FOR FINAL REPORT	2008-11-03	WH	
0	FOR APPROVAL	2008-08-29	WH	
NO	DESCRIPTION	DATE	APP'V	

DWG. TITLE:
EXPANDED POLYSTYRENE PROFILE PLACEMENT

PROJECT:
STAGE THREE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



CONT No. 200-6270
GWP No. 6025-08-00



CLIENT:
Ministry of Transportation
Northwestern Region

DRAWN BY:
T.B.

APPROVED BY:
G.M.

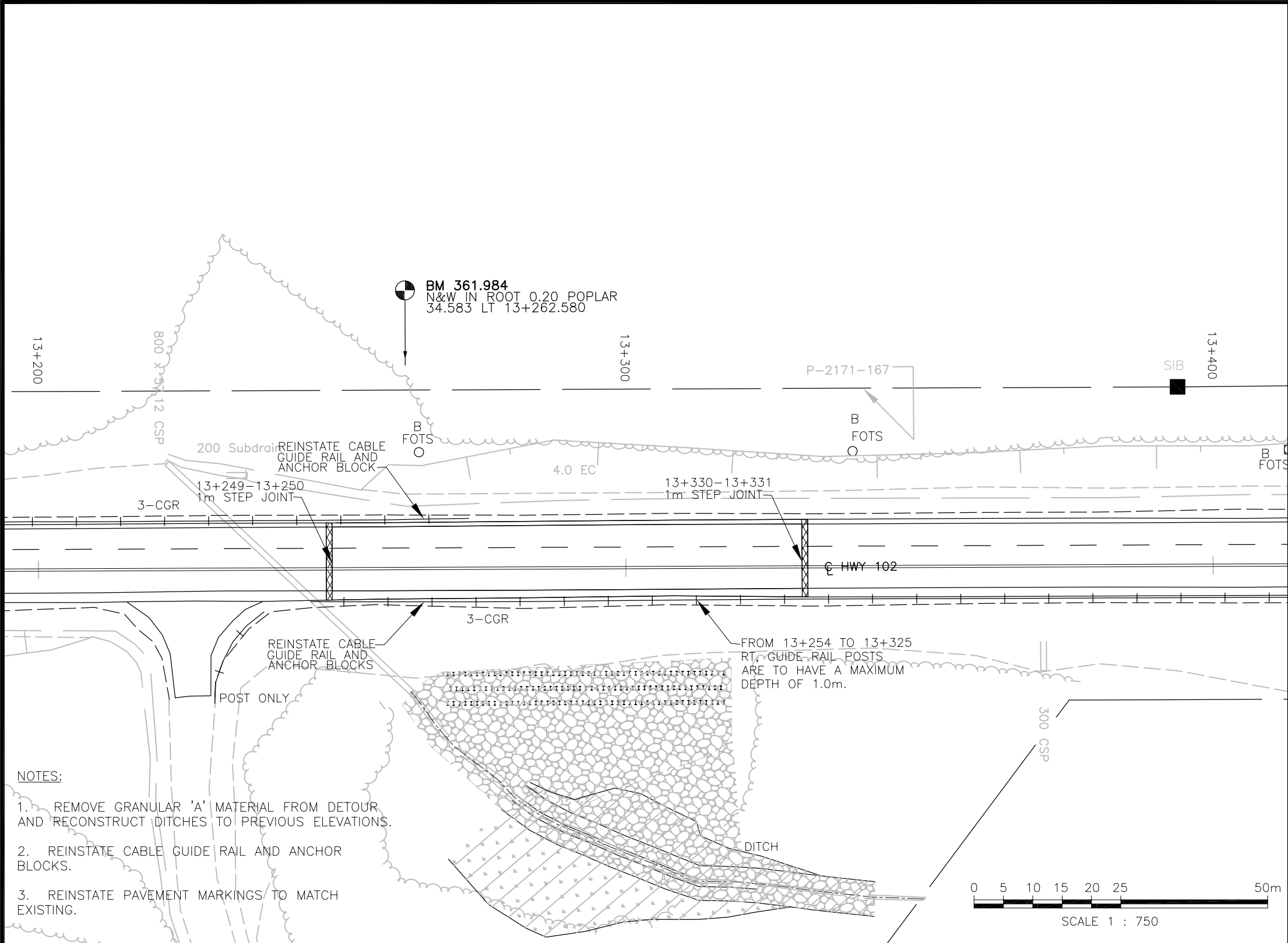
SCALE:
AS SHOWN

PROJECT NO.
08-011-2

DATE:
AUGUST 2008

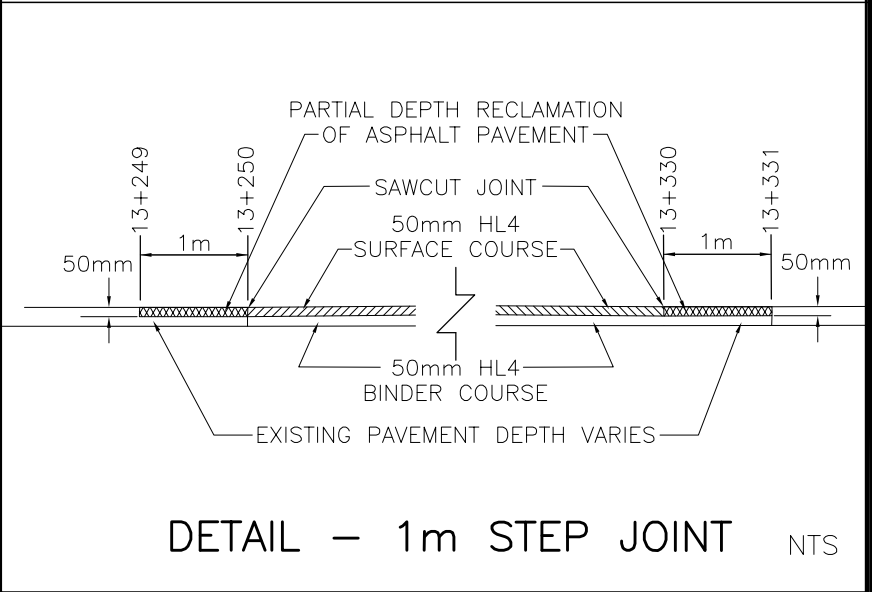
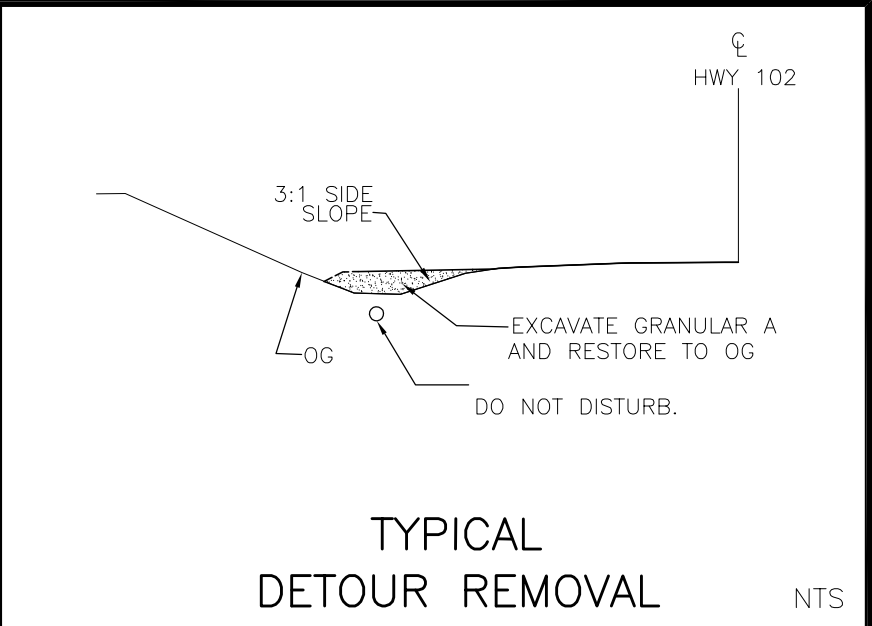
DRAWING
3-10

CAD REF. NO.:



NOTES:

1. REMOVE GRANULAR 'A' MATERIAL FROM DETOUR AND RECONSTRUCT DITCHES TO PREVIOUS ELEVATIONS.
2. REINSTATE CABLE GUIDE RAIL AND ANCHOR BLOCKS.
3. REINSTATE PAVEMENT MARKINGS TO MATCH EXISTING.



ESTIMATED MATERIAL QUANTITIES:

- GRANULAR A - 200 m³ (shouldering and grading)
- GRANULAR B TYPE III - 750 m³
- HOT MIX - 131 tonnes (surface course)
- 108 tonnes (binder course)
- PAVEMENT REMOVAL - 720 m²
- 10 cm DOUBLE YELLOW (SOLID) - 164 m
10 cm WHITE EDGELINE (SOLID) - 164 m
3-9-3 WHITE (DASHED) - 21 m

METRIC
DIMENSIONS ARE IN METRES
AND/OR MILLIMETRES UNLESS
OTHERWISE SHOWN

NO	DESCRIPTION	DATE	APP'V
1	FOR FINAL REPORT	2008-11-03	WH
0	FOR APPROVAL	2008-08-29	WH

DWG. TITLE:

FINAL PAVING DETAILS

PROJECT:

STAGE THREE - EMBANKMENT STABILIZATION
HWY 102 - STATION 13+300
KAMINISTQUIA, ONTARIO



CONT No. 2008-6270
WP No. 6025-08-00



CLIENT:
Ministry of Transportation
Northwestern Region

DRAWN BY: M.M.	PROJECT NO. 07-084-1
APPROVED BY: G.T.	DATE: AUGUST 2008
SCALE: AS SHOWN	DRAWING 3-11