A1 SIZE (594 mm x 841 mm)

## KGS GROUP — SUMMARY LOG

REFERENCE NO. —
HOLE NO. TH17-02
SHEET 1 of 2

CLIENT WSP CANADA GROUP LIMITED
PROJECT Truro Creek Culvert Replacements
SITE Linwood Street Culvert Crossing
LOCATION North of Culvert Inlet
DRILLING METHOD 125 mm ø Solid Stem Auger, B54X Track Mounted Drill Rig

JOB NO. 17-0183-002
GROUND ELEV. 233.04 m +/-
TOP OF CASING ELEV.
WATER ELEV.
DATE DRILLED 10/5/2017
UTM (m) N 5,527,372 E 627,324

| ELEVATION (m) | DEPTH (m) | DEPTH (ft) | DESCRIPTION AND CLASSIFICATION | PIEZ. LOG | DEPTH (m) | SAMPLE TYPE | SAMPLE NUMBER | RECOVERY % | SPT (N) blows/0.15 m ▲ / DYNAMIC CONE (N) blows/ft △ | Cu POCKET PEN (kPa) ★ / Cu TORVANE (kPa) ◆ / PL MC LL / % |
|---|---|---|---|---|---|---|---|---|---|---|
| 233 | | | | | 0.1 | | | | | |
| 232.7 | 0 | | TOPSOIL (OH) – Dark brown, damp, firm, intermediate to high plasticity, trace rootlets. | | 0.1 | | | | | |
| | | | SILTY CLAY FILL (CH) – Dark brown to black, damp, stiff, high plasticity, trace fine to coarse grained sand, trace fine to coarse grained gravel, trace organics. | | 0.3 | | S01 | | | |
| 232 | 1 | 5 | | | | | | | | |
| 231.8 | | | SILTY CLAY (CH) – Brown, damp, stiff, high plasticity, trace silt inclusions. | | | | | | | |
| | | | | | | | S02 | | | |
| 231 | 2 | | | | | | | | | |
| 230 | 3 | 10 | | | | | S03 | | | |
| 229 | 4 | | | | | | | | | |
| | | 15 | – Dark brown to grey, damp to moist, firm below 4.6 m. | | | | | | | |
| 228 | 5 | | | | | | S04 | | | |
| | | 20 | – Dark grey, moist, occasional silt till pockets below 6.1 m. | | 6.1 | | | | | |
| 227 | 6 | | | | 6.6 | | | | | |
| | | | | | 6.8 | | S05 | | | |
| 226 | 7 | | | | 7.0 | | | | | |
| | | 25 | – Moist to wet, soft, trace fine to coarse grained sand, occasional fine to coarse grained gravel below 7.6 m. | | | | | | | |

SAMPLE TYPE ⊠ Auger Grab ⊠ Split Spoon

CONTRACTOR Maple Leaf Drilling Ltd. | INSPECTOR K. HAMILTON | APPROVED DEA | DATE 10/6/17

GEOTECHNICAL_SOIL_LOG_LV\MM\17-0183-002\17-0183-002 – TRURO CREEK CULVERT REPLACEMENTS – LOGS.GPJ

## KGS GROUP — SUMMARY LOG

REFERENCE NO. —
HOLE NO. TH17-02
SHEET 2 of 2

| ELEVATION (m) | DEPTH (m) | DEPTH (ft) | DESCRIPTION AND CLASSIFICATION | PIEZ. LOG | DEPTH (m) | SAMPLE TYPE | SAMPLE NUMBER | RECOVERY % | SPT (N) blows/0.15 m ▲ / DYNAMIC CONE (N) blows/ft △ | Cu POCKET PEN (kPa) ★ / Cu TORVANE (kPa) ◆ / PL MC LL / % |
|---|---|---|---|---|---|---|---|---|---|---|
| 225 | | | | | | | S06 | | | |
| 224.5 | | | SILT (ML) – Tan, damp to moist, compact, trace fine to coarse grained sand, trace fine to coarse grained gravel. | | | | | | | |
| 224 | 9 | 30 | | | | | S07 | | | |
| 223 | 10 | | SILT TILL – Tan, damp, compact to very dense, some to with fine to coarse grained sand, some to with fine to coarse grained gravel, difficult drilling. | | | | S08 | | | |
| | | 35 | | | | | | | ▲6 ▲13 ▲19 | |
| 222 | 11 | | | | | | S09 | 100 | | |
| | | | | | | | S10 | | ▲40 ▲50/ * | |
| 221 | 12 | | | | | | S11 | 100 | | |
| | | | | | | | S12 | | * Stopped with 25 mm left in rod set. | |
| 220 | 13 | 40 | | | | | | | ▲9 ▲10 ▲10 | |
| | | 45 | | | | | | | | |
| 219 | 14 | | | | 13.7 | | S13 | 100 | | |
| 218.6 | | | POWER AUGER REFUSAL at 14.48 m<<C>> | | 14.2 | | | | ▲48 ▲37 ▲23/ * | |
| | | | | | 14.5 | | S14 | 100 | * Stopped with 125 mm left in 3rd set. | |
| 218 | 15 | 50 | Notes: | | | | | | | |
| | | | 1. Test hole was dry while drilling above the silt till. Significant water infiltration into the test hole from the silt till below 10 m below ground surface. | | | | | | | |
| 217 | 16 | | 2. At the completion of drilling the test hole was open to 14.3 m with water at 6.7 m below ground surface. | | | | | | | |
| | | | 3. Casagrande tipped standpipe installed at 14.48 m below ground surface. | | | | | | | |
| 216 | 17 | 55 | 4. Pneumatic piezometer PN037469 installed at 6.77 m below ground surface. | | | | | | | |
| | | | 5. Backfilled with sand from 14.48 m to 13.7 m, bentonite chips from 13.7 m to 7 m, sand from 7 m to 6.1 m and bentonite chips from 6.1 m to ground surface. | | | | | | | |
| | | | 6. Flush mount casing installed to protect instrumentation. | | | | | | | |
| | | | 7. Truro creek level approximately 1.5 m below ground surface at the time of drilling. | | | | | | | |

SAMPLE TYPE ⊠ Auger Grab ⊠ Split Spoon

CONTRACTOR Maple Leaf Drilling Ltd. | INSPECTOR K. HAMILTON | APPROVED DEA | DATE 10/6/17

GEOTECHNICAL_SOIL_LOG_LV\MM\17-0183-002\17-0183-002 – TRURO CREEK CULVERT REPLACEMENTS – LOGS.GPJ

NOTE:
These design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract.

## KGS GROUP — SUMMARY LOG

REFERENCE NO. —
HOLE NO. TH17-07
SHEET 1 of 1

CLIENT WSP CANADA GROUP LIMITED
PROJECT Truro Creek Culvert Replacements
SITE Linwood Street Culvert Crossing
LOCATION North of Culvert in Northbound Lane 1.3 m from Curb
DRILLING METHOD 125 mm ø Solid Stem Auger, CME 55 Truck Mounted Drill Rig

JOB NO. 17-0183-002
GROUND ELEV. 233.31 m +/-
TOP OF CASING ELEV.
WATER ELEV.
DATE DRILLED 11/5/2017
UTM (m) N 5,527,384 E 627,336

| ELEVATION (m) | DEPTH (m) | DEPTH (ft) | DESCRIPTION AND CLASSIFICATION | SAMPLE TYPE | SAMPLE NUMBER | RECOVERY % | SPT (N) blows/0.15 m ▲ / DYNAMIC CONE (N) blows/ft △ | Cu POCKET PEN (kPa) ★ / Cu TORVANE (kPa) ◆ / PL MC LL / % |
|---|---|---|---|---|---|---|---|---|
| 233.1 | | | CONCRETE – 165 mm thick | | S01 | | | |
| 233 | 0 | | SANDY SILT (SM) – Tan, moist to wet, loose to very loose, with fine to coarse grained sand, trace clay. | | S02 | | | |
| 232.2 | 1 | 5 | | | S03 | | | |
| 232 | | | SILTY CLAY (CH) – Brown, damp, stiff, high plasticity, trace silt inclusions. | | S04 | | | |
| | | | | | S05 | | | |
| 231 | 2 | | | | S06 | | | |
| | | | | | S07 | | | |
| 230.3 | 3 | 10 | End of Hole at 3.05 m<<C>> | | S08 | | | |
| 230 | | | Notes: | | S09 | | | |
| | 4 | | 1. Test hole was open and dry to 3.05 m. | | S10 | | | |
| 229 | | 15 | 2. Backfilled with bentonite chips from 3.05 m to 2.5 m, cuttings from 2.5 m to 0.2 m, sand from 0.2 m to 0.175 m and redimix concrete from 0.175 m to ground surface. | | | | | |
| | 5 | | | | | | | |
| 228 | | | | | | | | |
| | 6 | 20 | | | | | | |
| 227 | | | | | | | | |
| | 7 | | | | | | | |
| 226 | | 25 | | | | | | |

SAMPLE TYPE ⊠ Auger Grab

CONTRACTOR Maple Leaf Drilling Ltd. | INSPECTOR K. HAMILTON | APPROVED DEA | DATE 10/6/17

GEOTECHNICAL_SOIL_LOG_LV\MM\17-0183-002\17-0183-002 – TRURO CREEK CULVERT REPLACEMENTS – LOGS.GPJ

## KGS GROUP — SUMMARY LOG

REFERENCE NO. —
HOLE NO. TH17-08
SHEET 1 of 1

CLIENT WSP CANADA GROUP LIMITED
PROJECT Truro Creek Culvert Replacements
SITE Linwood Street Culvert Crossing
LOCATION South of Culvert in Southbound Lane 1.3 m from Curb
DRILLING METHOD 125 mm ø Solid Stem Auger, CME 55 Truck Mounted Drill Rig

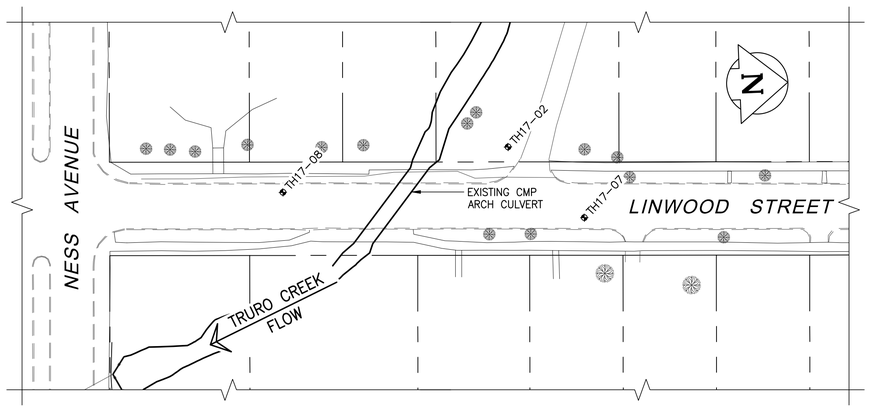
JOB NO. 17-0183-002
GROUND ELEV. 232.37 m +/-
TOP OF CASING ELEV.
WATER ELEV.
DATE DRILLED 11/5/2017
UTM (m) N 5,527,335 E 627,330

| ELEVATION (m) | DEPTH (m) | DEPTH (ft) | DESCRIPTION AND CLASSIFICATION | SAMPLE TYPE | SAMPLE NUMBER | RECOVERY % | SPT (N) blows/0.15 m ▲ / DYNAMIC CONE (N) blows/ft △ | Cu POCKET PEN (kPa) ★ / Cu TORVANE (kPa) ◆ / PL MC LL / % |
|---|---|---|---|---|---|---|---|---|
| 232.2 | | | CONCRETE – 165 mm thick | | S01 | | | |
| 232 | 0 | | SILTY CLAY FILL (CH) – Dark brown to black, damp, stiff, high plasticity, some fine to coarse grained sand, trace fine to coarse grained gravel, trace to some organics. | | S02 | | | |
| | | | – Firm below 0.3 m. | | S03 | | | |
| 231 | 1 | 5 | | | S04 | | | |
| | | | | | S05 | | | |
| 230.4 | 2 | | – Stiff below 1.8 m. | | S06 | | | |
| | | | SILTY CLAY (CH) – Brown, damp, stiff, high plasticity, trace silt inclusions. | | S07 | | | |
| 230 | | | | | S08 | | | |
| | | | | | S09 | | | |
| 229.3 | 3 | 10 | End of Hole at 3.05 m<<C>> | | S10 | | | |
| 229 | | | Notes: | | | | | |
| | 4 | | 1. Test hole was open and dry to 3.05 m. | | | | | |
| 228 | | 15 | 2. Backfilled with bentonite chips from 3.05 m to 2.5 m, cuttings from 2.5 m to 0.2 m, sand from 0.2 m to 0.175 m and redimix concrete from 0.175 m to ground surface. | | | | | |
| | 5 | | | | | | | |
| 227 | | | | | | | | |
| | 6 | 20 | | | | | | |
| 226 | | | | | | | | |
| | 7 | | | | | | | |
| 225 | | 25 | | | | | | |

SAMPLE TYPE ⊠ Auger Grab

CONTRACTOR Maple Leaf Drilling Ltd. | INSPECTOR K. HAMILTON | APPROVED DEA | DATE 10/6/17

GEOTECHNICAL_SOIL_LOG_LV\MM\17-0183-002\17-0183-002 – TRURO CREEK CULVERT REPLACEMENTS – LOGS.GPJ




KEY PLAN

SCALE: 1:500 METERS
0 10 20 30

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
KGS Group
No. 245

**METRIC**
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

LOCATIONS APPROVED UNDERGROUND STRUCTURES

SIGNED BY: _____
SUPV. U/G STRUCTURES — DATE

LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT CONFIRMATION OF EXISTANCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING

G.B.M. = TOP NUT OF FIRST HYDRANT SOUTH OF INTERSECTION BETWEEN NESS AVENUE AND LINWOOD STREET
ELEV. = 233.659

| No. | REVISIONS | DATE | BY |
|---|---|---|---|
| 0 | ISSUED FOR TENDER | 17.11.23 | JL |

KGS GROUP CONSULTING ENGINEERS

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| | | | |
|---|---|---|---|
| DESIGNED BY | KWH | CHECKED BY | DEA |
| DRAWN BY | CP | APPROVED BY | JL |
| HOR. SCALE | 1:500 | RELEASED FOR CONSTRUCTION | |
| VERTICAL | 1:500 | | |
| DATE | 17.11.23 | DATE | |

ENGINEER'S SEAL
PROVINCE OF MANITOBA — Nov. 23/17 — D.E.S. ANDERSON — Member 2216 — REGISTERED PROFESSIONAL ENGINEER

CONSULTANT PROJECT No.
17M-00806-00

Winnipeg

# THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TRURO CREEK CULVERT REPLACEMENT AT LINWOOD STREET

BORING LOGS

CITY DRAWING NUMBER C321-17-03
BID OPPORTUNITY NUMBER 1014-2017
SHEET 3 OF 19
REV 0

Plotted: November 24, 2017 at 10:34:24 AM | Last saved by: Patersonc
File: P:\2017\17M-00806-00 – Truro Creek Culvert Replacements\MMM Drawings\17M-00806-00 Truro Creek Culvert Replacements DD Linwood 03 boring logs.dwg | Layout: 3 Boring Logs