

# CORE PHOTOS

BOREHOLE No.: **BH03**

SHEET: 3 OF 6

|                             |                                |                           |                                    |
|-----------------------------|--------------------------------|---------------------------|------------------------------------|
| PROJECT: Ryman Site 3       |                                | LOCATION: Kohimarama Road | JOB No.: 30314.0000                |
| CO-ORDINATES:<br>(NZTM2000) | 5918724.50 mN<br>1764013.90 mE | DRILL TYPE:               | HOLE STARTED: 12/10/2018           |
| R.L.:                       | 32.50m                         | DRILL METHOD: RC          | HOLE FINISHED: 12/10/2018          |
| DATUM                       | ELLIPSOID                      | DRILL FLUID:              | DRILLED BY: McMillan Drilling      |
|                             |                                |                           | LOGGED BY: PEMI      CHECKED: RHGR |



12.00-15.50m



15.50-18.00m



# CORE PHOTOS

BOREHOLE No.: **BH03**  
SHEET: 4 OF 6

|   |                  |                               |                               |
|---|------------------|-------------------------------|-------------------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road     | JOB No.: 30314.0000           |
| CO-ORDINATES: 5918724.50 mN<br>(NZTM2000) 1764013.90 mE | DRILL TYPE:      | HOLE STARTED: 12/10/2018      |                               |
| R.L.: 32.50m  | DRILL METHOD: RC | HOLE FINISHED: 12/10/2018     |                               |
| DATUM: ELLIPSOID  | DRILL FLUID:     | DRILLED BY: McMillan Drilling | LOGGED BY: PEMI CHECKED: RHGR |



18.00-20.65m



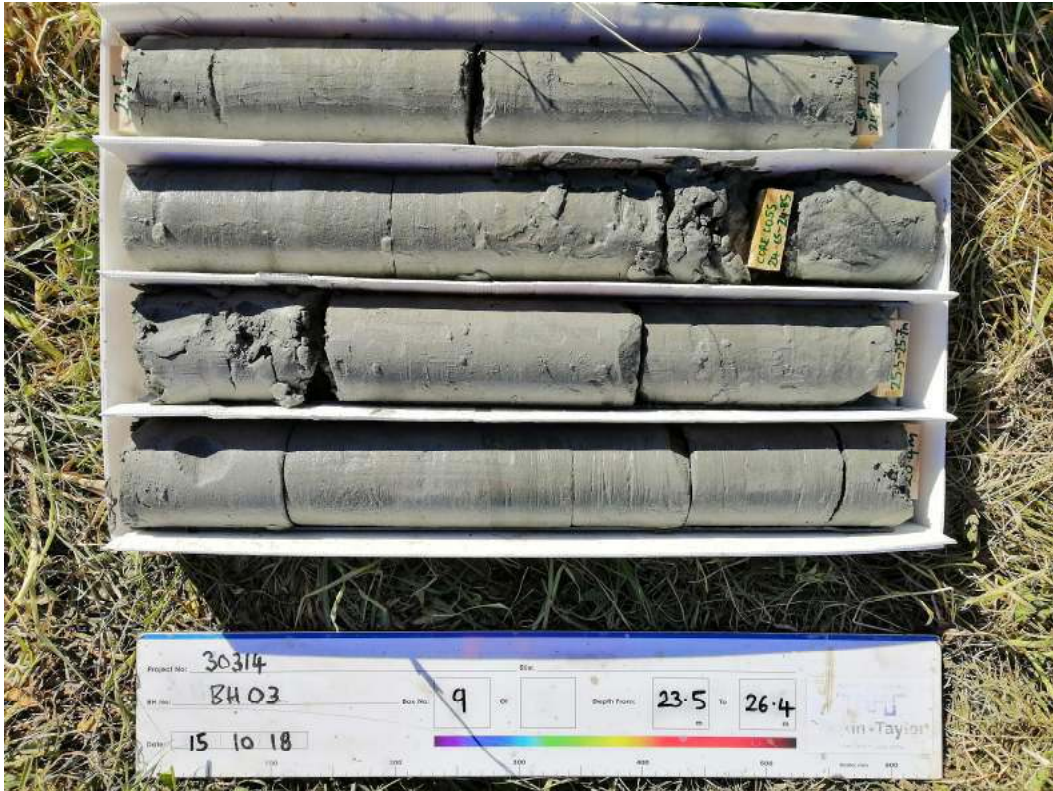
20.65-23.50m



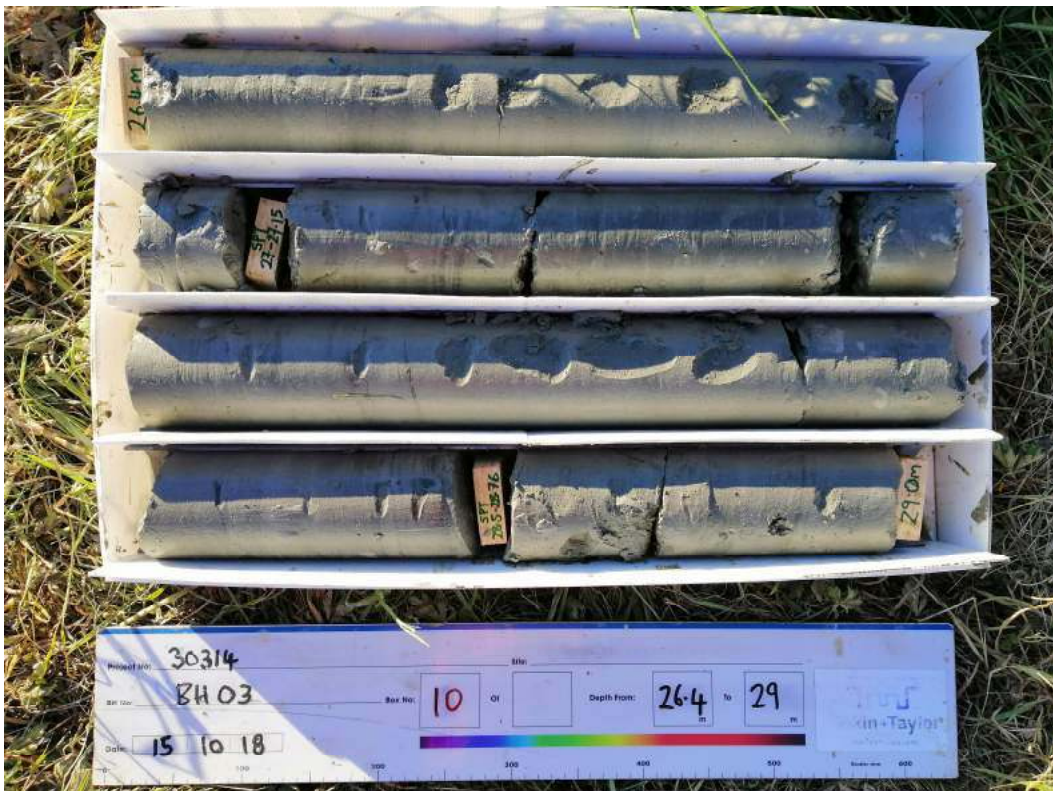
# CORE PHOTOS

BOREHOLE No.: **BH03**  
SHEET: 5 OF 6

|   |                  |                               |                               |
|---|------------------|-------------------------------|-------------------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road     | JOB No.: 30314.0000           |
| CO-ORDINATES: 5918724.50 mN<br>(NZTM2000) 1764013.90 mE | DRILL TYPE:      | HOLE STARTED: 12/10/2018      |                               |
| R.L.: 32.50m  | DRILL METHOD: RC | HOLE FINISHED: 12/10/2018     |                               |
| DATUM: ELLIPSOID  | DRILL FLUID:     | DRILLED BY: McMillan Drilling | LOGGED BY: PEMI CHECKED: RHGR |



23.50-26.40m



26.40-29.00m

# CORE PHOTOS

BOREHOLE No.: **BH03**

SHEET: 6 OF 6

|                             |                                |                           |                                    |
|-----------------------------|--------------------------------|---------------------------|------------------------------------|
| PROJECT: Ryman Site 3       |                                | LOCATION: Kohimarama Road | JOB No.: 30314.0000                |
| CO-ORDINATES:<br>(NZTM2000) | 5918724.50 mN<br>1764013.90 mE | DRILL TYPE:               | HOLE STARTED: 12/10/2018           |
| R.L.:                       | 32.50m                         | DRILL METHOD: RC          | HOLE FINISHED: 12/10/2018          |
| DATUM                       | ELLIPSOID                      | DRILL FLUID:              | DRILLED BY: McMillan Drilling      |
|                             |                                |                           | LOGGED BY: PEMI      CHECKED: RHGR |



29.00-30.00m





# BOREHOLE LOG

BOREHOLE No.:

**BH04**

SHEET: 2 OF 3

DRILLED BY: Huri

LOGGED BY: FYAN

CHECKED: RHGR

START DATE: 18/10/2018

FINISH DATE: 18/10/2018

CONTRACTOR: McMillan Drilling

PROJECT: Ryman Site 3  
 JOB No.: 30314.0000  
 LOCATION: Kohimarama Road

CO-ORDINATES 5918690.80 mN  
 (NZTM2000) 1764009.90 mE

DIRECTION:  
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 34.20m  
 R.L. COLLAR: 34.20m  
 DATUM: ELLIPSOID  
 SURVEY: Handheld GPS

| GEOLOGICAL UNIT           | DESCRIPTION OF CORE  |  | ROCK DEFECTS    |               |                 |                   |   |        |           |             |            |                       |         |  |                |             |        |              |             |  |
|---------------------------|--|--|-----------------|---------------|-----------------|-------------------|---|--------|-----------|-------------|------------|-----------------------|---------|--|----------------|-------------|--------|--------------|-------------|--|
|                           | SOIL: Classification, colour, consistency / density, moisture, plasticity<br>ROCK: Weathering, colour, fabric, name, strength, cementation |  | Rock Weathering | Rock Strength | Sampling Method | Core Recovery (%) | Testing                                 | RL (m) | Depth (m) | Graphic Log | Defect Log | Fracture Spacing (mm) | RQD (%) | Description & Additional Observations  | Fluid Loss (%) | Water Level | Casing | Installation | Core Box No |  |
| East Coast Bays Formation | From 9.8m: Clayey SILT, with trace sand; Stiff, moist, high plasticity.  |  | UW              | 100           | PQTT            | 100               | 0/0                                     | 24     |           |             |            |                       |         |  |                |             |        |              |             |  |
|                           | Sandy SILT, with some clay, occasional wood fragments and organic silt beds; grey to dark brown. Soft, moist, high plasticity; sand, fine. |  | UW              | 100           | SPT             | 100               | 2/2<br>2/3<br>N=9                       | 11     |           |             |            |                       |         | 10.30m: Possible shear zone to 10.6m. Softer, with wood fragments in material.   |                |             |        |              |             |  |
|                           | Silty, fine SAND; grey. Medium dense, moist, non-plastic; sand, sub-rounded.   |  | UW              | 100           | PQTT            | 100               |   | 23     |           |             |            |                       |         |  |                |             |        |              |             |  |
|                           | Sandy SILT; grey. Very stiff to hard, moist, low plasticity; sand, fine. [Moderately weathered, ECBF, extremely weak]                      |  | UW              | 100           | SPT             | 100               | 206/52<br>3/3<br>5/5<br>7/7<br>N=24     | 12     |           |             |            |                       |         |  |                |             |        |              |             |  |
|                           | Clayey SILT, trace sand; grey. Hard, moist, high plasticity; sand, fine. [Moderately weathered, ECBF, extremely weak]                      |  | UW              | 100           | PQTT            | 100               |   | 13     |           |             |            |                       |         |  |                |             |        |              |             |  |
|                           | Moderately weathered, grey SILTSTONE. Very weak. Moderately thin, gently inclined bedding with some black coalified organic streaks.       |  | UW              | 100           | SPT             | 100               | UTP<br>6/6<br>7/8<br>8/8<br>N=31        | 14     |           |             |            |                       |         | 12.95m: BF, 5° dip, PL, SM, CL, polished<br>13.10m: DD, 0° dip, PL, infilled with drill silt<br>13.95m: Black organic streaks, sub-horizontal<br>13.25 - 13.40m: J, 60° dip, UN, SL, CN<br>13.35m: J, 5° dip, ST, VN, CV<br>13.95m: Black organic streaks, sub-horizontal. |                |             |        |              |             |  |
|                           | Silty, fine SAND; grey. Dense, moist, non-plastic; sand, sub-rounded. [Moderately weathered, ECBF, extremely weak.]                        |  | UW              | 100           | PQTT            | 100               | UTP<br>5/5<br>7/7<br>8/10<br>N=32       | 15     |           |             |            |                       |         |  |                |             |        |              |             |  |
|                           | Moderately weathered, grey SILTSTONE. Very weak, massive.  |  | UW              | 85            | PQTT            | 85                |   | 16     |           |             |            |                       |         |  |                |             |        |              |             |  |
|                           | 16.35-16.5m: CORE LOSS.  |  | UW              | 30            | SPT             | 30                | 8/15<br>17/21<br>12<br>for 30mm<br>N=50 | 17     |           |             |            |                       |         | 16.40m: J, 0° dip, UN, VN, CN<br><br>16.90 - 17.10m: White speckles visible, fine to medium sand sized.<br>16.95m: DD<br>17.25m: J, 0° dip, UN, T, CN<br>17.35m: DD  |                |             |        |              |             |  |
|                           | Slightly weathered, grey SILTSTONE. Weak. Thick, sub-horizontal bedding.   |  | UW              | 100           | PQTT            | 100               | 22/28<br>for 30mm<br>N=50               | 18     |           |             |            |                       |         | 17.70m: XD, 0° dip, PL, T, infill 2 mm thick (silty sand, very weakly cemented),<br>17.90m: DD<br>18.30m: DD<br>18.50m: DD<br>18.70m: DD   |                |             |        |              |             |  |
| East Coast Bays Formation | Silty, fine SAND; grey. Firm to stiff, moist, non-plastic. [Moderately weathered, ECBF, extremely weak]                                    |  | UW              | 0             | SPT             | 0                 | 17/18<br>14/10<br>10/12<br>N=46         | 19     |           |             |            |                       |         | 19.05m: DD<br>19.15m: XD, 0° dip, PL, VN, infill 5mm thick (silty sand, extremely weak, cemented)<br>19.30m: J, 5° dip, PL, T, CV (silty clay)   |                |             |        |              |             |  |

COMMENTS: Push tube samples taken in an adjacent wash bored hole at: 1-1.5m, 2-2.5m, 3-3.5m, 4-4.5m, 5-5.5m, 6-6.5m, 7-7.5m and 8-8.5m.

Hole Depth  
28.69m  
Scale 1:50

# BOREHOLE LOG

BOREHOLE No.:

**BH04**

SHEET: 3 OF 3

DRILLED BY: Huri

LOGGED BY: FYAN

CHECKED: RHGR

START DATE: 18/10/2018

FINISH DATE: 18/10/2018

CONTRACTOR: McMillan Drilling

PROJECT: Ryman Site 3  
 JOB No.: 30314.0000  
 LOCATION: Kohimarama Road

CO-ORDINATES 5918690.80 mN  
 (NZTM2000) 1764009.90 mE

DIRECTION:  
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 34.20m  
 R.L. COLLAR: 34.20m  
 DATUM: ELLIPSOID  
 SURVEY: Handheld GPS

| GEOLOGICAL UNIT           | DESCRIPTION OF CORE   |    | ROCK DEFECTS    |               |                 |  |  |        |           |             |            |                       |         |   |                |             |        |              |             |
|---------------------------|---|----|-----------------|---------------|-----------------|--|--|--------|-----------|-------------|------------|-----------------------|---------|---|----------------|-------------|--------|--------------|-------------|
|                           | SOIL: Classification, colour, consistency / density, moisture, plasticity<br>ROCK: Weathering, colour, fabric, name, strength, cementation                                  |    | Rock Weathering | Rock Strength | Sampling Method | Core Recovery (%)                                    | Testing  | RL (m) | Depth (m) | Graphic Log | Defect Log | Fracture Spacing (mm) | RQD (%) | Description & Additional Observations   | Fluid Loss (%) | Water Level | Casing | Installation | Core Box No |
| East Coast Bays Formation | [CONT] Silty, fine SAND; grey. Firm to stiff, moist, non-plastic. [Moderately weathered, ECBF, extremely weak]  |    | UW              | US            | PQTT            | 90   |  | 14     |           |             |            | 0                     |         |   |                |             |        |              |             |
|                           | Slightly weathered, grey SILTSTONE. Weak, with white speckled zones and thin silt layers 10-30mm thick.   |    | UW              | US            | SPT             | 100  | 5/13<br>15/17<br>17<br>for<br>75mm<br>N <sub>50</sub> =50  | 21     |           |             |            |                       |         |   |                |             |        |              |             |
|                           | Unweathered to slightly weathered, grey SANDSTONE. Very weak.<br>Slightly weathered SILTSTONE. Weak.  |    | UW              | US            | PQTT            | 100  |  | 22     |           |             |            | 90                    |         | 21.90m: 30mm thick organic rich lamination<br>21.95m: J, 10° dip, PL, T, CN   |                |             |        |              |             |
|                           | 23.2-23.8m: Unweathered to slightly weathered SILTSTONE. Extremely weak. Moderately thin (20-300mm) laminae of coalified organics (wood fragments), thin sandstone laminae. |    | UW              | US            | SPT             | 100  | 11/24<br>50<br>for<br>70mm<br>N <sub>50</sub> =50          | 23     |           |             |            |                       |         | 22.40m: DD<br>22.50 - 22.70m: White speckle zone, fine sand sized.  |                |             |        |              |             |
|                           | Unweathered to slightly weathered, grey, massive SILTSTONE. Weak.   |    | UW              | US            | PQTT            | 100  |  | 24     |           |             |            | 90                    |         | 23.00m: DD<br>23.20m: DD<br>23.65m: J, 5° dip, PL, T, CN<br>23.85m: XD, 0° dip, PL, VN, infill<br>20mm thick (silty sand, extremely weak) |                |             |        |              |             |
|                           | 26.15m-26.5m: CORE LOSS. Grades to slightly weathered, fine grained SANDSTONE. Extremely weak.  |    | UW              | US            | SPT             | 0  | 10/26<br>50<br>for<br>70mm<br>N <sub>50</sub> =50<br>Solid | 25     |           |             |            |                       |         | 24.60m: DD<br>24.90m: J, 10° dip, PL, T, CV<br>25.10m: J, 10° dip, PL, VN, infill<br>2-5mm thick (grey silty clay)                        |                |             |        |              |             |
|                           | Unweathered to slightly weathered, interbedded SANDSTONE and SILTSTONE. Weak.   |    | UW              | US            | PQTT            | 100  |  | 26     |           |             |            | 90                    |         | 25.85m: Brown organic streak, 30mm in sized (15°)<br>25.90m: DD<br>26.27m: Sparse organic material (wood fragments).                      |                |             |        |              |             |
|                           | 26.60m-26.75m: CORE LOSS. Grades to slightly weathered, fine grained SANDSTONE. Extremely weak.   |    | UW              | US            | SPT             | 0  | 22/28<br>for<br>40mm<br>N <sub>50</sub> =50<br>Solid       | 27     |           |             |            |                       |         | 26.60m: DD<br>26.75m: DD<br>26.85m: DD  |                |             |        |              |             |
|                           | Unweathered to slightly weathered, grey, fine grained SANDSTONE. Weak to very weak.   |    | UW              | US            | PQTT            | 73   |  | 28     |           |             |            | 73                    |         | 27.45m: DD<br>27.60m: XD, 0° dip, PL, N, infill<br>30mm thick (silty sand)  |                |             |        |              |             |
|                           | 28.69m: END OF BOREHOLE   |    | UW              | US            | SPT             | 0  | 13/37<br>for<br>60mm<br>N <sub>50</sub> =50<br>Solid       | 29     |           |             |            | 90                    |         |   |                |             |        |              |             |
|                           |   | UW | US              | PQTT          | 100             |  | 30   |        |           |             |            |                       |         |   |                |             |        |              |             |
|                           |   | UW | US              | SPT           | 0               | 17/33<br>for<br>70mm<br>N <sub>50</sub> =50<br>Solid | 31   |        |           |             |            |                       |         |   |                |             |        |              |             |

COMMENTS: Push tube samples taken in an adjacent wash bored hole at: 1-1.5m, 2-2.5m, 3-3.5m, 4-4.5m, 5-5.5m, 6-6.5m, 7-7.5m and 8-8.5m.

Hole Depth  
28.69m  
Scale 1:50



|                             |                                |                           |                                    |
|-----------------------------|--------------------------------|---------------------------|------------------------------------|
| PROJECT: Ryman Site 3       |                                | LOCATION: Kohimarama Road | JOB No.: 30314.0000                |
| CO-ORDINATES:<br>(NZTM2000) | 5918690.80 mN<br>1764009.90 mE | DRILL TYPE:               | HOLE STARTED: 18/10/2018           |
| R.L.:                       | 34.20m                         | DRILL METHOD: RC          | HOLE FINISHED: 18/10/2018          |
| DATUM                       | ELLIPSOID                      | DRILL FLUID:              | DRILLED BY: McMillan Drilling      |
|                             |                                |                           | LOGGED BY: FYAN      CHECKED: RHGR |



0.00-4.50m



4.50-8.25m



|   |                  |                               |                               |
|---|------------------|-------------------------------|-------------------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road     | JOB No.: 30314.0000           |
| CO-ORDINATES: 5918690.80 mN<br>(NZTM2000) 1764009.90 mE | DRILL TYPE:      | HOLE STARTED: 18/10/2018      |                               |
| R.L.: 34.20m  | DRILL METHOD: RC | HOLE FINISHED: 18/10/2018     |                               |
| DATUM: ELLIPSOID  | DRILL FLUID:     | DRILLED BY: McMillan Drilling | LOGGED BY: FYAN CHECKED: RHGR |



8.25-10.95m



10.95-13.95m



|   |                  |                               |                               |
|---|------------------|-------------------------------|-------------------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road     | JOB No.: 30314.0000           |
| CO-ORDINATES: 5918690.80 mN<br>(NZTM2000) 1764009.90 mE | DRILL TYPE:      | HOLE STARTED: 18/10/2018      |                               |
| R.L.: 34.20m  | DRILL METHOD: RC | HOLE FINISHED: 18/10/2018     |                               |
| DATUM: ELLIPSOID  | DRILL FLUID:     | DRILLED BY: McMillan Drilling | LOGGED BY: FYAN CHECKED: RHGR |



13.95-16.50m



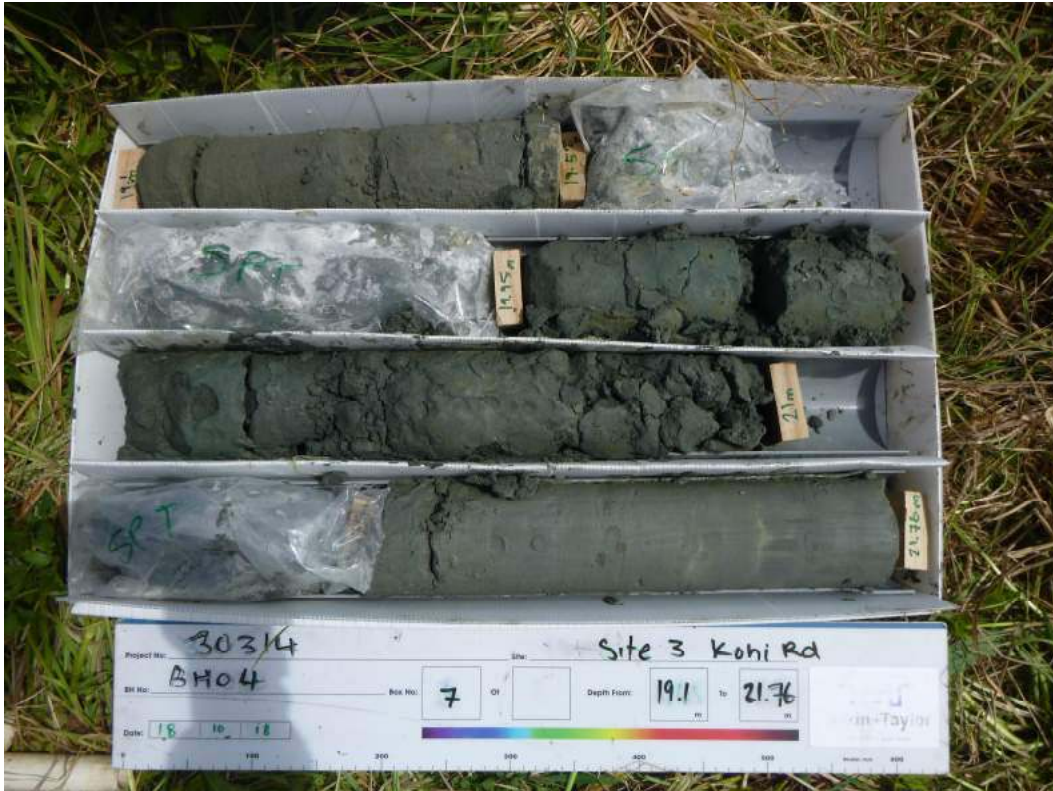
16.50-19.10m



# CORE PHOTOS

BOREHOLE No.: **BH04**  
SHEET: 4 OF 5

|                             |                                |                           |   |
|-----------------------------|--------------------------------|---------------------------|---|
| PROJECT: Ryman Site 3       |                                | LOCATION: Kohimarama Road | JOB No.: 30314.0000   |
| CO-ORDINATES:<br>(NZTM2000) | 5918690.80 mN<br>1764009.90 mE | DRILL TYPE:               | HOLE STARTED: 18/10/2018  |
| R.L.:                       | 34.20m                         | DRILL METHOD: RC          | HOLE FINISHED: 18/10/2018   |
| DATUM                       | ELLIPSOID                      | DRILL FLUID:              | DRILLED BY: McMillan Drilling<br>LOGGED BY: FYAN      CHECKED: RHGR |



19.10-21.76m



21.76-24.42m



|                             |                                |                           |                                    |
|-----------------------------|--------------------------------|---------------------------|------------------------------------|
| PROJECT: Ryman Site 3       |                                | LOCATION: Kohimarama Road | JOB No.: 30314.0000                |
| CO-ORDINATES:<br>(NZTM2000) | 5918690.80 mN<br>1764009.90 mE | DRILL TYPE:               | HOLE STARTED: 18/10/2018           |
| R.L.:                       | 34.20m                         | DRILL METHOD: RC          | HOLE FINISHED: 18/10/2018          |
| DATUM                       | ELLIPSOID                      | DRILL FLUID:              | DRILLED BY: McMillan Drilling      |
|                             |                                |                           | LOGGED BY: FYAN      CHECKED: RHGR |



24.42-27.40m



27.40-28.69m



# BOREHOLE LOG

BOREHOLE No.:

**BH05**

SHEET: 1 OF 3

DRILLED BY: Huri

LOGGED BY: GBB

CHECKED: RHGR

START DATE: 23/04/2018

FINISH DATE: 24/10/2018

CONTRACTOR: McMillan Drilling

PROJECT: Ryman Site 3  
 JOB No.: 30314.0000  
 LOCATION: Kohimarama Road

CO-ORDINATES 5918686.20 mN  
 (NZTM2000) 1763949.50 mE

DIRECTION:  
 ANGLE FROM HORIZ.: -90°

R.L. GROUND: 32.50m  
 R.L. COLLAR: 32.50m  
 DATUM: ELLIPSOID  
 SURVEY: Handheld GPS

| GEOLOGICAL UNIT           | DESCRIPTION OF CORE   |   | Rock Weathering | Rock Strength | Sampling Method | Core Recovery (%) | Testing                   | RL (m)     | Depth (m) | Graphic Log | ROCK DEFECTS |                       |         | Fluid Loss (%) | Water Level | Casing | Installation | Core Box No |                                       |
|---------------------------|---|---|-----------------|---------------|-----------------|-------------------|---------------------------|------------|-----------|-------------|--------------|-----------------------|---------|----------------|-------------|--------|--------------|-------------|---------------------------------------|
|                           | SOIL: Classification, colour, consistency / density, moisture, plasticity   | ROCK: Weathering, colour, fabric, name, strength, cementation |                 |               |                 |                   |                           |            |           |             | Defect Log   | Fracture Spacing (mm) | RQD (%) |                |             |        |              |             | Description & Additional Observations |
| Fill                      | 0.0-1.5m: CORE LOSS, replaced drilling bit.   |   |                 |               | PQITT           | 0                 |                           | 32         | 1         |             |              |                       |         |                |             |        |              |             |                                       |
|                           | 1.50 - 1.60m: some fine rootlets.   |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Clayey SILT; dark brown. Very soft, moist, low plasticity.  |   |                 |               | SPT             | 66                | 0/0<br>0/1<br>1/2<br>N=4  |            | 31        | 2           |              |                       |         |                |             |        |              |             |                                       |
|                           | Clayey SILT, with some sand; light orange brown, speckled grey and orange. Soft, moist, low plasticity; sand, fine. |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | 1.95 - 2.00m: Clayey SILT, with some fine rootlets; dark brown.   |   |                 |               | PQITT           | 100               |                           |            | 30        |             |              |                       |         |                |             |        |              |             |                                       |
|                           | 2.55 - 2.65m: stained orange and dark grey with some amorphous organic material.                                    |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Clayey SILT; dark grey. Stiff, moist, moderate plasticity.  |   |                 |               | SPT             | 100               | 0/2<br>2/2<br>1/4<br>N=9  | ● 22/6 kPa | 29        | 3           |              |                       |         |                |             |        |              |             |                                       |
|                           | 3.00 - 3.60m: trace fine rootlets.  |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | 3.45 - 3.60m: dark grey, fibrous organic material.  |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Silty SAND; dark grey. Loose, moist, non-plastic.   |   |                 |               | PQITT           | 100               |                           |            | 28        | 4           |              |                       |         |                |             |        |              |             |                                       |
| East Coast Bays Formation | Clayey SILT; dark grey. Stiff, moist, moderate plasticity.  |   |                 |               | SPT             | 100               | 1/2<br>2/3<br>3/5<br>N=13 |            | 27        | 5           |              |                       |         |                |             |        |              |             |                                       |
|                           | 5.0-5.08m: very thin, very closely bedded, gently inclined dark grey organic silt.                                  |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Silty SAND; dark grey. Loose, moist, non-plastic, homogeneous.  |   |                 |               | PQITT           | 90                |                           |            | 27        |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Clayey SILT, with trace sand; dark grey. Firm to stiff, moist, low plasticity, homogeneous.                         |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Silty SAND; dark grey. Loose to medium dense, moist, non-plastic, homogeneous.                                      |   |                 |               | SPT             | 100               | 0/3<br>4/4<br>5/6<br>N=19 |            | 26        | 6           |              |                       |         |                |             |        |              |             |                                       |
|                           | SAND, with some silt; greenish grey. Loose, moist, non-plastic, homogeneous.  |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | 7.20 - 7.50m: Broken by drilling, appears to be softened  |   |                 |               | PQITT           | 70                |                           |            | 25        | 7           |              |                       |         |                |             |        |              |             |                                       |
|                           | Clayey SILT, with trace sand; dark grey. Firm to stiff, moist, low plasticity, homogeneous.                         |   |                 |               | SPT             | 100               | 1/1<br>2/2<br>3/3<br>N=10 |            | 24        | 8           |              |                       |         |                |             |        |              |             |                                       |
|                           | SAND, with some silt; dark grey. Loose, grading medium dense to bottom of horizon, moist, non-plastic.              |   |                 |               |                 |                   |                           |            |           |             |              |                       |         |                |             |        |              |             |                                       |
|                           | Silty to moderately weathered, dark grey SILTSTONE. Extremely to very weak, indistinctly bedded.                    |   |                 |               | PQITT           | 90                | 3/3<br>4/7<br>9/9<br>N=29 |            | 23        | 9           |              |                       |         |                |             |        |              |             |                                       |

COMMENTS: All observed breaks in core are drilling/logging induced, unless otherwise indicated. Solid cone SPT used from 10.5m. Push tube samples taken from an adjacent wash drilled borehole at: 1-1.5m, 2-2.5m, 3-3.5m, 4-4.5m and 5-5.5m depth.

Hole Depth  
21.13m

Scale 1:50

Rev.: A



Tonkin+Taylor

# BOREHOLE LOG

BOREHOLE No.:

BH05

SHEET: 2 OF 3

DRILLED BY: Huri

LOGGED BY: GBB

CHECKED: RHGR

START DATE: 23/04/2018

FINISH DATE: 24/10/2018

CONTRACTOR: McMillan Drilling

PROJECT: Ryman Site 3  
JOB No.: 30314.0000  
LOCATION: Kohimarama Road

CO-ORDINATES 5918686.20 mN  
(NZTM2000) 1763949.50 mE

R.L. GROUND: 32.50m  
R.L. COLLAR: 32.50m  
DATUM: ELLIPSOID  
SURVEY: Handheld GPS

DIRECTION:  
ANGLE FROM HORIZ.: -90°

| GEOLOGICAL UNIT           | DESCRIPTION OF CORE   |   | Rock Weathering | Rock Strength | Sampling Method | Core Recovery (%) | Testing   | RL (m) | Depth (m) | Graphic Log | ROCK DEFECTS                                  |                       |   | Fluid Loss (%)  | Water Level | Casing | Installation | Core Box No |                                       |
|---------------------------|---|---|-----------------|---------------|-----------------|-------------------|---|--------|-----------|-------------|---|-----------------------|---|---|-------------|--------|--------------|-------------|---------------------------------------|
|                           | SOIL: Classification, colour, consistency / density, moisture, plasticity   | ROCK: Weathering, colour, fabric, name, strength, cementation |                 |               |                 |                   |   |        |           |             | Defect Log                                    | Fracture Spacing (mm) | RQD (%)   |   |             |        |              |             | Description & Additional Observations |
| East Coast Bays Formation | Moderately weathered, banded light and dark grey, bedded, silty, fine to medium grained SANDSTONE. Very weak. Bedding sub-horizontal ~10°, very thin to thin and very closely spaced. |   | UW              | CS            | PQTT            | 90                | 9/24<br>23/23<br>4<br>for<br>10mm<br>N <sub>50</sub> =50<br>Solid   | 22     | 11        |             | 2000<br>1000<br>500<br>200<br>100<br>50<br>20 | 90                    |   |   |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, bedded SILTSTONE. Very weak. Bedding gently inclined 10-20°, very thin and very closely spaced.  |   | UW              | CS            | SPT             | 0                 | 10/16<br>21/21<br>8<br>for<br>15mm<br>N <sub>50</sub> =50<br>Solid  | 21     | 12        |             |   | 87                    | 11.50 - 11.70m: Sandy SILT; dark grey. Soft, moist, low plasticity.               |   |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, homogeneous SANDSTONE. Extremely weak.   |   | UW              | CS            | PQTT            | 100               | 8/15<br>15/20<br>15<br>for<br>45mm<br>N <sub>50</sub> =50<br>Solid  | 20     | 13        |             |   | 67                    | 13.00 - 13.35m: Occasional dark grey organic silt laminae, very thin, undulating. |   |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, bedded SILTSTONE. Very weak. Bedding gently inclined 10-20°, very thin and very closely spaced.  |   | UW              | CS            | SPT             | 96                | 85/13<br>16/16<br>18<br>for<br>75mm<br>N <sub>50</sub> =50<br>Solid | 19     | 14        |             |   |                       | 86  | 13.81 - 13.88m: Very thin and very closely spaced, organic silt beds, moderately inclined.  |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, homogeneous SANDSTONE. Extremely weak.   |   | UW              | CS            | PQTT            | 100               | 11/23<br>27/16<br>7<br>for<br>40mm<br>N <sub>50</sub> =50<br>Solid  | 18     | 15        |             |   |                       | 100   | 14.70m: J, 15° dip, UN, SM, CG, clayey silt<br>14.75m: J, 20° dip, UN, SM, CG, clayey silt  |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, bedded SILTSTONE. Very weak. Bedding gently inclined 10-20°, very thin and very closely spaced.  |   | UW              | CS            | SPT             | 0                 | 18/23<br>25/25<br>for<br>45mm<br>N <sub>50</sub> =50<br>Solid       | 17     | 16        |             |   |                       | 100   | 14.75 - 15.00m: Clayey SILT; dark grey. Soft, moist, low to moderate plasticity.  |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, homogeneous SANDSTONE. Extremely weak.   |   | UW              | CS            | PQTT            | 100               | 7/15<br>41/9<br>for<br>5mm<br>N <sub>50</sub> =50<br>Solid          | 16     | 17        |             |   |                       | 100   | 16.84 - 17.64m: Bedding thin  |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, homogeneous SANDSTONE. Extremely weak.   |   | UW              | CS            | SPT             | 0                 |   | 15     | 18        |             |   |                       | 100   | 17.20m: J, 20° dip, PL, R, CN<br>17.72m: J, 30° dip, UN, SM CN  |             |        |              |             |                                       |
|                           | Moderately weathered, dark grey, SANDSTONE layer. Very weak   |   | UW              | CS            | PQTT            | 100               |   | 14     | 19        |             |   |                       | 97  | 17.64 - 17.80m: Gently inclined, 15°, very thin and very closely spaced organic silt  |             |        |              |             |                                       |
|                           | Moderately weathered, grey, fine to medium grained, homogeneous SANDSTONE. Very   |   | UW              | CS            | SPT             | 0                 |   | 13     | 20        |             |   |                       | 84  | 18.55m: J, 15° dip, ST, SM, CL<br>18.70m: J, 15° dip, PL, R, CG, with greyish white carbonates  |             |        |              |             |                                       |
|                           | 19.43-19.45m: Slightly weathered, greyish white, coarse grained SANDSTONE. Weak.  |   | UW              | CS            | PQTT            | 99                |   | 13     | 21        |             |   |                       | 84  | 18.70m: J, 15° dip, PL, R, CG, with greyish white carbonates<br>19.00 - 19.09m: Thin, very closely spaced undulating organic silt beds, moderately inclined, 25°.<br>19.10m: J, 10° dip, PL, CG, with greyish white carbonates<br>19.00 - 19.09m: Thin, very closely spaced undulating organic silt beds, moderately inclined, 25°. |             |        |              |             |                                       |
|                           | Slightly weathered, dark greenish grey, bedded SILTSTONE. Very weak to weak. Bedding thin bands of closely spaced siltstone and fine grained sandstone, gently inclined ~10°          |   | UW              | CS            | SPT             | 84                |   | 13     | 22        |             |   |                       | 84  | 19.80 - 19.88m: Thin, very closely spaced undulating organic silt beds, moderately inclined, 25°.   |             |        |              |             |                                       |

COMMENTS: All observed breaks in core are drilling/logging induced, unless otherwise indicated. Solid cone SPT used from 10.5m. Push tube samples taken from an adjacent wash drilled borehole at: 1-1.5m, 2-2.5m, 3-3.5m, 4-4.5m and 5-5.5m depth.

Hole Depth  
21.13m  
Scale 1:50





|   |                  |                               |                              |
|---|------------------|-------------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road     | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918686.20 mN<br>(NZTM2000) 1763949.50 mE | DRILL TYPE:      | HOLE STARTED: 23/04/2018      |                              |
| R.L.: 32.50m  | DRILL METHOD: RC | HOLE FINISHED: 24/10/2018     |                              |
| DATUM: ELLIPSOID  | DRILL FLUID:     | DRILLED BY: McMillan Drilling | LOGGED BY: GBB CHECKED: RHGR |



0.00-4.00m



4.00-6.63m



# CORE PHOTOS

BOREHOLE No.: **BH05**

SHEET: 2 OF 4

|   |                  |                           |                     |
|---|------------------|---------------------------|---------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road | JOB No.: 30314.0000 |
| CO-ORDINATES: 5918686.20 mN<br>(NZTM2000) 1763949.50 mE | DRILL TYPE:      | HOLE STARTED: 23/04/2018  |                     |
| R.L.: 32.50m  | DRILL METHOD: RC | HOLE FINISHED: 24/10/2018 |                     |
| DATUM: ELLIPSOID  | DRILL FLUID:     | LOGGED BY: GBB            | CHECKED: RHGR       |



6.63-10.03m



10.03-12.90m



|   |                  |                           |                     |
|---|------------------|---------------------------|---------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road | JOB No.: 30314.0000 |
| CO-ORDINATES: 5918686.20 mN<br>(NZTM2000) 1763949.50 mE | DRILL TYPE:      | HOLE STARTED: 23/04/2018  |                     |
| R.L.: 32.50m  | DRILL METHOD: RC | HOLE FINISHED: 24/10/2018 |                     |
| DATUM: ELLIPSOID  | DRILL FLUID:     | LOGGED BY: GBB            | CHECKED: RHGR       |



12.90-15.76m



15.76-18.63m



# CORE PHOTOS

BOREHOLE No.: **BH05**  
SHEET: 4 OF 4

|   |                  |                           |                     |
|---|------------------|---------------------------|---------------------|
| PROJECT: Ryman Site 3                                   |                  | LOCATION: Kohimarama Road | JOB No.: 30314.0000 |
| CO-ORDINATES: 5918686.20 mN<br>(NZTM2000) 1763949.50 mE | DRILL TYPE:      | HOLE STARTED: 23/04/2018  |                     |
| R.L.: 32.50m  | DRILL METHOD: RC | HOLE FINISHED: 24/10/2018 |                     |
| DATUM: ELLIPSOID  | DRILL FLUID:     | LOGGED BY: GBB            | CHECKED: RHGR       |



18.63-21.13m

# HAND AUGER LOG

HOLE Id: **HA23**

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918817.33 mN<br>(NZTM2000) 1763996.30 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 41.80m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |       |                   |        |                                   |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |               |         |        |           |             |                       |            |  |   |   |
|---|-------|-------------------|--------|-----------------------------------|---|---|---|---|---|-------------------------|---|---|---------------|---------|--------|-----------|-------------|-----------------------|------------|--|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER<br>(Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS         | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE<br>CONDITION | WEATHERING | STRENGTH/DENSITY<br>CLASSIFICATION   | SHEAR STRENGTH<br>(kPa)                           | Description and<br>Additional Observations                                      |
|   |       |                   |        | 1                                 | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |               |         |        |           |             |                       |            |  |   |   |
| Topsoil   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 135/19 kPa  |         |        |           |             | M                     | VSt        |  | SILT; dark brown. Very stiff, moist, non-plastic. |   |
| Fill  |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 161/48 kPa  |         |        |           |             | VSt-H                 |            | Clayey SILT; yellow orange brown. Very stiff to hard, moist, low plasticity.   |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● >224 kPa    | 41      | 1      |           |             | H                     |            | Clayey SILT; yellow orange brown, mottled grey. Hard, moist, low plasticity.<br>1.25m: Trace sand. Moist; sand, fine.<br>1.4m: Minor sand; grey white. Sand, fine. |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● >224 kPa    |         |        |           |             | VSt-H                 |            | Clayey SILT; grey white. Very stiff to hard, moist; moderate plasticity.   |   |   |
| Residual Soil   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● >224 kPa    |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 211/104 kPa |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 199/80 kPa  |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 221/96 kPa  |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 179/88 kPa  |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 160/74 kPa  |         |        |           |             |                       |            |  |   | 2.8m: low plasticity  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 148/74 kPa  |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 147/81 kPa  |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 115/67 kPa  |         |        |           |             |                       |            |  |   | Clayey SILT; grey white. Very stiff, wet, low plasticity.                       |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● UTP         |         |        |           |             |                       |            |  |   | Clayey SILT; grey white. Hard, saturated, low plasticity.                       |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● UTP         |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● UTP         |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● UTP         |         |        |           |             |                       |            |  |   | Clayey SILT; grey white, orange brown streaks. Hard, saturated, low plasticity. |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● UTP         |         |        |           |             |                       |            |  |   | Clayey SILT; orange brown. Hard, saturated, low plasticity.                     |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   | ● UTP         |         |        |           |             |                       |            |  |   |   |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |   |               |         |        |           |             |                       |            |  |   | 5.2m: Target depth  |

COMMENTS

Hole Depth 5.2m

Scale 1:30



# HAND AUGER LOG

HOLE Id: **HA24**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918799.70 mN<br>(NZTM2000) 1763965.00 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 43.80m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |       |         |        |           |             |            |                    |                                 |  |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|-------|---------|--------|-----------|-------------|------------|--------------------|---------------------------------|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING | MOISTURE CONDITION | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa)   | Description and Additional Observations   |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |       |         |        |           |             |            |                    |                                 |  |   |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | SILT, minor clay; yellowish brown, with inclusions of topsoil. Moist, low plasticity.      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | Clayey SILT; yellowish brown. Very stiff, moist, low plasticity.                           |   |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | SILT, minor clay, trace sand. Very stiff to hard, moist; sand, fine; low to no plasticity. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | 1.0m: some red mottles   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | SILT, some clay. Stiff to very stiff, moist, low plasticity.                               |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | 2.5m: light greyish white mottled pink   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | 3.4m: yellowish brown mottled light yellowish brown, non plastic                           |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |  | 3.9m: yellowish brown mottled pink        |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |  | 4.2m: moist to wet; light yellowish brown |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |  | 5.2m: Target depth                        |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |  |   |

COMMENTS  
 Hole Depth 5.2m  
 Scale 1:30

# HAND AUGER LOG

HOLE Id: **HA25**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918761.50 mN<br>(NZTM2000) 1763961.90 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 36.10m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |            |                   |            |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |              |              |              |           |             |            |                    |                                 |  |  |   |
|---|------------|-------------------|------------|--------------------------------|---|---|---|---|---|-------------------------|---|---|--------------|--------------|--------------|-----------|-------------|------------|--------------------|---------------------------------|--|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER      | CORE RECOVERY (%) | METHOD     | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS        | SAMPLES      | RL (m)       | DEPTH (m) | GRAPHIC LOG | WEATHERING | MOISTURE CONDITION | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa)   | Description and Additional Observations  |   |
|   |            |                   |            | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |              |              |              |           |             |            |                    |                                 |  |  |   |
| Fill  | 16/11/2018 | 100%              | W/L + Z/US |                                |   |   |   |   |   |                         |   |   |              | ● 109/30 kPa | 36           |           |             | M          |                    |                                 |  | SILT; dark brown (topsoil), with minor yellowish brown inclusions. Moist, non-plastic. Abundant fine grey gravel, minor clay |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              |              |           |             |            | Vst                |                                 | Clayey SILT. Very stiff, moist, low plasticity; brown and yellowish brown. |  |   |
| Topsoil   |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● 132/55 kPa | 35           | 1            |           |             |            |                    |                                 | SILT; dark brown. Very stiff, moist, non-plastic.                          |  |   |
| Residual Soil   | 13/11/2018 | 100%              | Intlow     |                                |   |   |   |   |   |                         |   |   |              | ● 158/69 kPa |              |           |             |            |                    |                                 |  | SILT, minor clay; light brown to light yellowish brown. Moist, low plasticity.   |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              | ● 118/60 kPa |              |           |             |            |                    |                                 |  | Clayey SILT; yellowish brown mottled light whitish grey. Stiff to very stiff, moist, low plasticity.                         |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 103/57 kPa |           |             |            |                    |                                 |  |  | 2.3m: low to no plasticity                        |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 103/49 kPa |           |             |            |                    |                                 |  |  | 2.8m: light brownish grey mottled orange brown    |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 115/46 kPa |           |             |            |                    |                                 |  |  | 3.0m: light greyish white mottled yellowish brown |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 98/26 kPa  |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 144/29 kPa |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 93/34 kPa  |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 92/29 kPa  |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              |              | ● 80/34 kPa  |           |             |            |                    |                                 |  |  |   |
| Residual East Coast Bays Formation Soils                              |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● 201/72 kPa |              |              |           |             |            |                    |                                 | SILT, some clay; greyish. Very stiff hard, moist, low plasticity.          |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● 184/61 kPa |              |              |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● 196/60 kPa |              |              |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |              |              |           |             |            |                    |                                 | Sandy SILT; grey. Hard, moist, non-plastic.                                |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● 201/60 kPa |              |              |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |              |              |           |             |            |                    |                                 |  |  |   |
|   |            |                   |            |                                |   |   |   |   |   |                         |   |   |              | 31           |              |           |             |            |                    |                                 | 5.1m: Target depth   |  |   |

|            |      |
|------------|------|
| COMMENTS   |      |
| Hole Depth | 5.1m |



# HAND AUGER LOG

HOLE Id: HA26

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918748.80 mN<br>(NZTM2000) 1763925.50 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 44.00m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |                               |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |       |         |        |           |             |            |                                 |   |   |
|---|-------------------------------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|-------|---------|--------|-----------|-------------|------------|---------------------------------|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER                         | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa)  | Description and Additional Observations   |
|   |                               |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |       |         |        |           |             |            |                                 |   |   |
| Fill  |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           | M           | VSt        |                                 | SILT, minor clay; dark brown (topsoil). Very stiff, moist, non-plastic; inclusions of gravel. |   |
|   | Topsoil                       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | SILT; dark brown. Very stiff, moist, non-plastic.   |   |
| Residual Soil   | 16/11/2018<br>W/L after 7 hrs |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             | St-VSt     |                                 | SILT, trace clay; yellowish brown. Very stiff, moist, non-plastic.                            |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | Clayey SILT; yellowish brown mottled light greyish white. Very stiff, moist, low plasticity.  |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | 1.6m: white mottled red and yellowish brown   |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            | VSt                             |   | Sandy SILT, minor clay; yellowish brown mottled white. Low to no plasticity.                        |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            | M-W                             | St-VSt  | Clayey SILT; reddish and yellowish brown mottled white. Stiff to very stiff, moist, low plasticity. |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | 3.7m: light brownish grey mottled yellowish brown   |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | 3.9m: light whitish brown   |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | 4.4m: wet, with reddish orange mottles  |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            | M                               | VSt   | SILT, minor clay, trace sand; light brownish white. Very stiff, moist; low to no plasticity.        |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | 5.0m: light orange  |   |
|   |                               |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                                 | 5.1m: Target depth  |   |

|                 |
|-----------------|
| COMMENTS        |
| Hole Depth 5.1m |
| Scale 1:30      |

# HAND AUGER LOG

HOLE Id: **HA27**

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918706.20 mN<br>(NZTM2000) 1763995.80 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 16/11/2018     |
| R.L.: 32.40m  | DRILL METHOD: HA            | HOLE FINISHED: 16/11/2018    |
| DATUM: NZVD2016   |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |  |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |              |              |              |              |               |             |                    |                    |   |  |   |
|---|--|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|--------------|--------------|--------------|--------------|---------------|-------------|--------------------|--------------------|---|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER  | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |              | TESTS        | SAMPLES      | R.L. (m)     | DEPTH (m)     | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING         | STRENGTH DENSITY CLASSIFICATION                                 | SHEAR STRENGTH (kPa)   | Description and Additional Observations   |
|   |  |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9            |              |              |              |               |             |                    |                    |   |  |   |
| Fill  | 16/11/2018<br>10/11/2018<br>16/11/2018<br>16/11/2018<br>16/11/2018<br>16/11/2018<br>16/11/2018<br>16/11/2018<br>16/11/2018<br>16/11/2018 | 100%              | S      |                                |   |   |   |   |   |                         |   |              |              | ● 70/10 kPa  | 32           |               |             | M                  | St                 | 18  | SILT, some clay; brown . Stiff, moist, low plasticity.<br>Clayey SILT; yellow brown. Stiff, moist, low plasticity. |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              | ● 160/80 kPa | 1             |             |                    | VSt                | 28  | GRAVEL; red . Well graded; gravel, fine to medium, Scoria.   |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 112/64 kPa  |             |                    |                    |   |  | Clayey SILT; brown white grey mottled. Very stiff, moist, low plasticity.   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 154/70 kPa  |             |                    |                    |   |  | Silty CLAY; brown white grey mottled. Very stiff, moist, high plasticity.   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 122/58 kPa  |             |                    |                    |   |  | SILT, some clay; yellowish brown, mottled grey white. Very stiff, moist, low plasticity.<br>1.6m: SILT; grey/white. Inclusions. |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 132/80 kPa  | 2           |                    |                    |   |  | Silty CLAY; grey . Very stiff, moist; moderate to high plasticity.  |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 151/74 kPa  |             |                    |                    |   |  | Silty CLAY; brown white streaks. Very stiff, moist, high plasticity.  |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 170/115 kPa |             |                    |                    |   |  | Silty CLAY; white/light grey. Very stiff to stiff, moist, high plasticity.<br>3.1m: CLAY; brown . Inclusions.                   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 131/83 kPa  | 3           |                    |                    |   |  | CLAY; grey brown. Stiff to very stiff, moist, high plasticity.  |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              |              | ● 78/3 kPa    |             |                    |                    |   |  | Clayey SILT; dark grey brown. Very stiff, moist; no to low plasticity.  |
| Topsoil   |  |                   |        |                                |   |   |   |   |   |                         |   |              | ● 106/16 kPa |              |              |               |             |                    |                    | SILT, some clay; grey white. Very stiff, moist, low plasticity. |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              | ● 138/16 kPa | 4            |               |             |                    |                    |   |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              |              | ● 129/45 kPa |               |             |                    |                    |   |  |   |
| Residual Soil   |  |                   |        |                                |   |   |   |   |   |                         |   |              | ● 128/27 kPa |              |              |               |             |                    |                    |   |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              | ● 154/54 kPa |              |               |             |                    |                    |   |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              |              | ● 173/35 kPa | 28           |               |             |                    |                    |   |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   | ● 173/22 kPa |              |              |              |               |             |                    |                    |   |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   | ● 110/29 kPa | 5            |              |              |               |             |                    |                    |   |  |   |
|   |  |                   |        |                                |   |   |   |   |   |                         |   |              | 27           |              |              |               |             |                    | 5.2m: Target depth |   |  |   |

COMMENTS

Hole Depth  
5.2m

HandAugerLog - 13/08/2019 6:53:33 a.m. - Produced with Core-GS by GeRoc

Scale 1:30

Rev.: A



# HAND AUGER LOG

HOLE Id: **HA28**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918723.80 mN<br>(NZTM2000) 1764011.30 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 16/11/2018     |
| R.L.: 32.30m  | DRILL METHOD: HA            | HOLE FINISHED: 16/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |              |              |         |        |           |             |                    |            |                                 |                      |  |  |  |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|--------------|--------------|---------|--------|-----------|-------------|--------------------|------------|---------------------------------|----------------------|--|--|--|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |              | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa) | Description and Additional Observations  |  |  |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9            |              |         |        |           |             |                    |            |                                 |                      |  |  |  |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |              |              |         |        |           |             |                    |            |                                 |                      | SILT; brown . Very stiff, moist, non-plastic.  |  |  |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 135/45 kPa | 32      |        |           |             |                    |            |                                 |                      | SILT; light brown, grey streaks. Very stiff, moist; non to low plasticity .              |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 184/80 kPa |         |        |           |             |                    |            |                                 |                      | SILT, some clay; grey brown, white inclusions. Very stiff, moist; non to low plasticity. |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 132/64 kPa |         |        |           |             |                    |            |                                 |                      |  |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 125/51 kPa | 1       |        |           |             |                    |            |                                 |                      |  | SILT, some clay; yellow grey, rusty brown inclusions. Very stiff, moist; non to low plasticity.      |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 141/48 kPa | 31      |        |           |             |                    |            |                                 |                      |  | SILT, some clay; white grey. Very stiff, moist; non to low plasticity.                               |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 135/64 kPa |         |        |           |             |                    |            |                                 |                      |  |  | Clayey SILT; grey white. Very stiff to stiff, moist; moderate plasticity.        |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 179/99 kPa |         |        |           |             |                    |            |                                 |                      |  |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 91/26 kPa  | 2       |        |           |             |                    |            |                                 |                      |  |  | CLAY, some silt; grey white. Stiff, moist, high plasticity.                      |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 131/6 kPa  | 30      |        |           |             |                    |            |                                 |                      |  |  | 2.5m: SILT; brown . Moist, non-plastic; top soil inclusions.                     |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 112/67 kPa |         |        |           |             |                    |            |                                 |                      |  |  | CLAY, some silt; grey . Stiff, moist; moderate plasticity.                       |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 88/0 kPa   |              |         |        |           |             |                    |            |                                 |                      |  |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 93/38 kPa  | 3            |         |        |           |             |                    |            |                                 |                      |  | SILT, some clay; grey brown. Stiff, moist; moderate plasticity, topsoil inclusions.                  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 77/10 kPa  | 29           |         |        |           |             |                    |            |                                 |                      |  | Silty CLAY; brown green grey. Stiff, moist; moderate to high plasticity.                             |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 84/17 kPa  |              |         |        |           |             |                    |            |                                 |                      |  | Silty CLAY; light grey. Stiff to very stiff, moist; moderate to high plasticity, topsoil inclusions. |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 90/42 kPa  | 4            |         |        |           |             |                    |            |                                 |                      |  |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 112/45 kPa |              |         |        |           |             |                    |            |                                 |                      |  |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 196/71 kPa | 28           |         |        |           |             |                    |            |                                 |                      |  |  | SILT; dark brown grading into grey. Very stiff, moist, non-plastic.              |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 154/74 kPa |              |         |        |           |             |                    |            |                                 |                      |  |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 131/75 kPa |              |         |        |           |             |                    |            |                                 |                      |  |  |  |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 88/61 kPa  | 5            |         |        |           |             |                    |            |                                 |                      |  |  | SILT, some clay; greyish brown. Very stiff to stiff, moist; moderate plasticity. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | 27           |         |        |           |             |                    |            |                                 |                      |  | 5.2m: Target depth   |  |

COMMENTS  
Hole Depth 5.2m  
Scale 1:30

HandAugerLog - 13/08/2019 6:53:35 a.m. - Produced with Core-GS by GeRoc





# HAND AUGER LOG

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918685.80 mN<br>(NZTM2000) 1763948.80 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 32.40m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |            |              |         |        |           |             |                    |            |  |  |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|------------|--------------|---------|--------|-----------|-------------|--------------------|------------|--|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |            | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH DENSITY CLASSIFICATION  | SHEAR STRENGTH (kPa)   | Description and Additional Observations                           |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9          |              |         |        |           |             |                    |            |  |  |   |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 136/38 kPa | 32      |        |           | M           | VSt                |            |  | SILT; dark brown. Very stiff, wet, non-plastic.  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 129/64 kPa |         |        |           |             |                    |            | Clayey SILT; yellowish brown and light grey. Very stiff, moist, low plasticity; minor inclusions of topsoil, gravel. |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 109/40 kPa |         |        |           |             |                    |            | Clayey SILT; light grey with yellowish brown mottles. Very stiff, moist, low plasticity.                             |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 102/41 kPa | 1       |        |           |             |                    |            |  |  |   |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 106/40 kPa |         |        |           | W           | St-VSt             |            |  | Sandy SILT; yellowish brown and orange brown mottled light greyish white. Stiff to very stiff, wet, non-plastic; sand, fine. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 102/37 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 96/34 kPa  |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 89/33 kPa  | 2       |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 101/38 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 109/37 kPa |         |        |           |             |                    |            |  |  |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 86/34 kPa  |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 115/46 kPa | 3       |        |           | M           | VSt                |            |  | Clayey SILT; grey . Very stiff, moist, low plasticity.   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 126/46 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 161/46 kPa |         |        |           |             | W                  |            |  |  | SILT, some clay; grey . Very stiff to stiff, wet, low plasticity. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 149/29 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 98/30 kPa  | 4       |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 132/49 kPa |         |        |           |             | M                  |            |  |  | Clayey SILT; grey . Very stiff, moist, low plasticity.            |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            | ● 181/72 kPa |         |        |           |             |                    |            |  |  | SILT; grey . Hard, moist, non-plastic.                            |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● >201 kPa |              |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● >201 kPa | 5            |         |        |           |             |                    |            |  | Clayey SILT; grey . Hard, moist, low plasticity.   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |            |              |         |        |           |             |                    |            |  | 5.1m: Target depth   |   |

COMMENTS

Hole Depth 5.1m

# HAND AUGER LOG

HOLE Id: HA31  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918712.15 mN<br>(NZTM2000) 1763921.14 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 39.40m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM: NZVD2016   |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |              |         |        |           |             |                    |            |  |  |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|--------------|---------|--------|-----------|-------------|--------------------|------------|--|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH DENSITY CLASSIFICATION  | SHEAR STRENGTH (kPa)   | Description and Additional Observations |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |              |         |        |           |             |                    |            |  |  |   |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |                    |            |  | SILT; brown . Stiff, moist, low plasticity.  |   |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 99/32 kPa  | 39      |        |           |             |                    |            |  | Clayey SILT, trace sand; brown mottled white orange. Stiff to very stiff, moist, low plasticity. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 192/64 kPa |         |        |           |             |                    |            |  | 0.6m: Clayey SILT; dark grey brown. Moist, low plasticity.                                       |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 136/64 kPa |         |        |           |             |                    |            | 1.1m: Trace sand; reddish. Sand, fine.   |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 125/48 kPa | 1       |        |           |             |                    |            | Clayey SILT; brown mottled orange white. Stiff to very stiff, moist, low plasticity. |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 109/54 kPa |         |        |           |             |                    |            | Clayey SILT; grey brown. Stiff to very stiff, moist, low plasticity.                 |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 96/54 kPa  |         |        |           |             |                    |            | Clayey SILT; grey . Stiff to very stiff, moist, low plasticity.                      |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 99/64 kPa  |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 109/77 kPa | 2       |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 99/64 kPa  |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 115/74 kPa |         |        |           |             |                    |            |  |  |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 125/77 kPa |         |        |           |             |                    |            |  | SILT; grey . Stiff to very stiff, moist, low plasticity.   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 135/74 kPa | 3       |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 131/70 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 144/77 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 96/61 kPa  |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 129/71 kPa | 4       |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 152/77 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 109/51 kPa |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 93/52 kPa  |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 158/77 kPa | 5       |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |                    |            |  |  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |                    |            |  | 5.2m: Target depth   |   |

COMMENTS

Hole Depth 5.2m

Scale 1:30

HandAugerLog - 13/08/2019 6:53:40 a.m. - Produced with Core-GS by GeRoc



# HAND AUGER LOG

HOLE Id: **HA32**

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918642.27 mN<br>(NZTM2000) 1763958.37 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 28.00m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |              |               |         |        |           |             |                    |            |   |  |  |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|--------------|---------------|---------|--------|-----------|-------------|--------------------|------------|---|--|--|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |              | TESTS         | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH DENSITY CLASSIFICATION                                   | SHEAR STRENGTH (kPa)   | Description and Additional Observations                          |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9            |               |         |        |           |             |                    |            |   |  |  |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 112/33 kPa  |         |        |           |             |                    | VSt        |   | SILT; dark brown. Very stiff, moist, non-plastic.                              |  |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 202/78 kPa  |         |        |           |             |                    | VSt-H      |   | Clayey SILT; dark brown. Very stiff, moist, low plasticity.                    |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 163/54 kPa  |         |        |           |             |                    |            |   | Clayey SILT; brown, speckled white. Very stiff to hard, moist, low plasticity. |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 160/49 kPa  | 27      | 1      |           |             |                    |            | 1.1 - 1.2m: Clayey SILT; dark brown. Moist, low plasticity.       |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 129/59 kPa  |         |        |           |             |                    |            | 1.4 - 1.5m: Clayey SILT; white mottled brown. Moist, non-plastic. |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 120/52 kPa  |         |        |           |             |                    |            |   |  |  |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 170/107 kPa |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 176/99 kPa  |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 208/87 kPa  | 26      | 2      |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 138/71 kPa  |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 151/64 kPa  |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 211/70 kPa  |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● >224 kPa    | 25      | 3      |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 184/55 kPa  |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 203/65 kPa  |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              | ● 173/64 kPa  | 24      | 4      |           |             |                    |            | VSt   |  | SILT; grey brown. Very stiff, moist to wet; moderate plasticity. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 157/64 kPa |               |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 125/48 kPa |               |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 112/54 kPa |               |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   | ● 145/39 kPa | 23            | 5       |        |           |             |                    | W          |   | Sandy SILT; grey brown. Very stiff, wet, low plasticity; sand, fine.           |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              |               |         |        |           |             |                    |            |   |  |  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |              |               |         |        |           |             |                    |            |   |  | 5.2m: Target depth   |

COMMENTS

Hole Depth 5.2m

Scale 1:30

HandAugerLog - 13/08/2019 6:53:41 a.m. - Produced with Core-GS by GeRoc

# HAND AUGER LOG

HOLE Id: **HA33**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918702.39 mN<br>(NZTM2000) 1763895.08 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 43.00m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM: NZVD2016   |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |                                 |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |             |              |              |           |             |            |                    |                                 |                      |  |   |
|---|---------------------------------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|-------------|--------------|--------------|-----------|-------------|------------|--------------------|---------------------------------|----------------------|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER                           | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS       | SAMPLES      | RL (m)       | DEPTH (m) | GRAPHIC LOG | WEATHERING | MOISTURE CONDITION | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa) | Description and Additional Observations  |   |
|   |                                 |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |             |              |              |           |             |            |                    |                                 |                      |  |   |
| Fill  | 16/11/2018<br>W/L after GS.5hrs |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 187/57 kPa |              |           |             |            |                    |                                 |                      |  | SILT, some clay; dark brown (topsoil). Wet, low plasticity. |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             |              | ● 124/44 kPa |           |             |            |                    |                                 |                      |  |   |
| Topsoil   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 116/49 kPa |              |           |             |            |                    |                                 |                      | 0.7m: yellowish brown mottled light whitish grey; low plasticity   |   |
| Residual Soil   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 102/32 kPa | 42           | 1         |             |            |                    |                                 |                      | SILT; dark brown. Very stiff, moist, non-Clayey SILT; orange brown. Firm to very stiff, moist, low plasticity. |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 101/6 kPa  |              |           |             |            |                    |                                 |                      | 1.8m: firm   |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 104/9 kPa  |              |           |             |            |                    |                                 |                      | Clayey SILT; brown with minor light grey mottles. Stiff, moist, low plasticity.                                |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 79/20 kPa  |              |           |             |            |                    |                                 |                      | Silty CLAY; light grey mottled brown. Firm to stiff, moist; medium to high plasticity.                         |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 44/9 kPa   | 41           | 2         |             |            |                    |                                 |                      |  | 4.5m: minor fine gravel                                     |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 95/7 kPa   |              |           |             |            |                    |                                 |                      |  | 4.8m: minor pinkish red mottles                             |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 55/14 kPa  |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 63/14 kPa  |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 56/9 kPa   | 40           | 3         |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             | ● 92/14 kPa  |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 44/29 kPa |              |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 72/26 kPa |              |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 96/23 kPa | 39           | 4            |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 78/33 kPa |              |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 95/34 kPa |              |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 61/30 kPa |              |              |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   | ● 41/24 kPa | 38           | 5            |           |             |            |                    |                                 |                      |  |   |
|   |                                 |                   |        |                                |   |   |   |   |   |                         |   |   |             |              |              |           |             |            |                    |                                 |                      | 5.1m: Target depth   |   |

|            |      |
|------------|------|
| COMMENTS   |      |
| Hole Depth | 5.1m |



# HAND AUGER LOG

HOLE Id: HA34

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918667.25 mN<br>(NZTM2000) 1763887.75 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 40.30m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |                                   |                   |        |                                   |   |   |   |   |   | ENGINEERING DESCRIPTION |              |              |       |         |        |           |             |                                     |  |  |  |
|---|-----------------------------------|-------------------|--------|-----------------------------------|---|---|---|---|---|-------------------------|--------------|--------------|-------|---------|--------|-----------|-------------|-------------------------------------|--|--|--|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | DATE: 13/11/2018<br>ON COMPLETION | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER<br>(Blows/0mm) |   |   |   |   |   |                         |              |              | TESTS | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING<br>MOISTURE<br>CONDITION | STRENGTH DENSITY<br>CLASSIFICATION   | SHEAR STRENGTH<br>(kPa)  | Description and<br>Additional Observations |
|   |                                   |                   |        | 1                                 | 2 | 3 | 4 | 5 | 6 | 7                       | 8            | 9            |       |         |        |           |             |                                     |  |  |  |
| Fill  |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● >224 kPa   |       | 40      |        |           | W           | H                                   |  | Clayey SILT; brown . Hard, wet, low plasticity.                          |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● UTP        |       |         |        | M         |             |                                     | SILT, trace gravel; brown . Hard, moist, non-plastic.                                |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 215/96 kPa |       |         |        |           |             |                                     | Clayey SILT; brown mottled black. Hard, moist, non-plastic.                          |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 144/81 kPa |       | 1       |        |           |             | VSt-H                               | Clayey SILT; orange brown, grey streaks. Very stiff, moist, low plasticity.          |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 167/88 kPa |       |         |        |           |             |                                     |  |  |  |
| Residual Soil   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 163/80 kPa |       | 39      |        |           |             | St-VSt                              | Clayey SILT; white/grey, orange streaks. Stiff to very stiff, moist, low plasticity. |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 155/81 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 139/64 kPa |       | 2       |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 103/54 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 91/51 kPa  |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 87/54 kPa  |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 106/45 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 110/39 kPa |       |         |        |           |             |                                     | VSt  | Clayey SILT; green grey orange brown. Very stiff, moist, low plasticity. |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 112/54 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 109/51 kPa |       |         |        |           |             |                                     |  |  |  |
| Residual East Coast Bays Formation Soils                              |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 110/55 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 131/61 kPa |       |         |        |           |             |                                     |  | Clayey SILT; grey . Very stiff, moist, low plasticity.                   |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 109/71 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              | ● 144/64 kPa |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         | ● 155/65 kPa |              |       |         |        |           |             |                                     |  |  |  |
|   |                                   |                   |        |                                   |   |   |   |   |   |                         |              |              |       | 35      |        |           |             |                                     |  | 5.1m: Target depth   |  |

COMMENTS

Hole Depth 5.1m

Scale 1:30

# HAND AUGER LOG

HOLE ID: HA35

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918634.39 mN<br>(NZTM2000) 1763925.95 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 34.61m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM: NZVD2016   |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: JOTI CHECKED: RBE |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |              |         |        |           |             |            |  |   |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|--------------|---------|--------|-----------|-------------|------------|--|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING | STRENGTH DENSITY CLASSIFICATION  | SHEAR STRENGTH (kPa)  | Description and Additional Observations |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |              |         |        |           |             |            |  |   |   |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 131/45 kPa |         | 34     |           | M           | VSt        |  | SILT; dark brown. Stiff, moist, non-plastic.                                    |   |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 177/55 kPa |         |        |           |             |            |  | SILT; brown, grey streaks. Very stiff, moist, non-plastic.                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 189/61 kPa |         |        |           |             |            |  | Clayey SILT; grey/white orange streaks. Very stiff, moist; moderate plasticity. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 147/59 kPa |         | 1      |           |             |            | Clayey SILT; orange brown, mottled white. Stiff to very stiff, moist, non-plastic. |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 157/80 kPa |         |        |           |             |            | Clayey SILT; grey brown, mottled orange. Very stiff, moist, non-plastic.           |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 157/64 kPa |         |        |           |             |            | Clayey SILT; brown. Very stiff, moist, non-plastic.                                |   |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 131/67 kPa |         | 33     |           | St-VSt      |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 97/20 kPa  |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, wet, non-plastic.                              |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 115/29 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 107/45 kPa |         | 2      |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 128/45 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 120/48 kPa |         | 32     |           | VSt         |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 131/83 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 161/55 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 141/51 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 163/64 kPa |         | 31     |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 160/67 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 141/55 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 176/61 kPa |         |        |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 163/70 kPa |         | 30     |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         | 5      |           |             |            | Clayey SILT; dark grey. Very stiff, moist, non-plastic.                            |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |            | 5.2m: Target depth   |   |   |

|            |      |
|------------|------|
| COMMENTS   |      |
| Hole Depth | 5.2m |



# HAND AUGER LOG

HOLE Id: **HA36**

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918622.03 mN<br>(NZTM2000) 1763936.42 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 32.24m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM: NZVD2016   |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |              |         |        |           |             |                    |            |   |   |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|--------------|---------|--------|-----------|-------------|--------------------|------------|---|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH DENSITY CLASSIFICATION                   | SHEAR STRENGTH (kPa)  | Description and Additional Observations   |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |              |         |        |           |             |                    |            |   |   |   |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 179/49 kPa | 32      |        |           |             | M                  | VSt        |   | SILT; dark brown. Very stiff, moist, non-plastic; friable.  |   |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 144/52 kPa |         |        |           |             |                    |            |   | Clayey SILT; yellowish brown. Very stiff, moist, low plasticity.  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 144/60 kPa |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 133/66 kPa | 1       |        |           |             | St-VSt             |            | 0.9m: yellowish brown mottled light greyish white |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 118/50 kPa |         |        |           |             |                    |            |   | SILT, some clay; yellowish brown mottled light greyish white. Stiff to very stiff, moist; low to no plasticity. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 93/40 kPa  |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 96/34 kPa  |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 83/32 kPa  | 2       |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 73/32 kPa  |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 107/40 kPa | 30      |        |           |             |                    | VSt        |   | Sandy SILT; yellowish brown speckled white. Stiff, wet, non-plastic.  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 152/44 kPa |         |        |           |             |                    |            |   | SILT, some clay; light grey and yellowish brown, with bands of orange silt. Very stiff, moist, low plasticity.  |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 104/32 kPa | 3       |        |           |             |                    |            |   | 2.7m: non plastic, white mottled orange brown<br>2.9m: becomes sandy  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 179/72 kPa |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 148/35 kPa |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 190/63 kPa |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 187/60 kPa | 4       |        |           |             |                    | VSt-H      |   | Clayey SILT; light grey. Very stiff, moist, low plasticity.   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         |        |           |             |                    |            |   |   | SILT, minor sand; light brown mottled orange brown. Very stiff, moist, non-plastic. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 147/40 kPa | 28      |        |           |             |                    |            |   |   | 4.2m: orange brown  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 190/78 kPa |         |        |           |             |                    |            |   |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   | 5       |        |           |             |                    | VSt        |   | SILT, minor clay; light grey mottled orange brown. Very stiff, moist; low to no plasticity.                     |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |                    |            |   |   | SILT, minor clay; grey. Very stiff, moist, non-plastic.                             |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |                    |            |   | SILT; grey. Very stiff, moist, non-plastic.   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         |        |           |             |                    |            |   |   | SILT; grey. Hard, moist, non-plastic; friable.                                      |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | 27           |         |        |           |             |                    |            |   |   | 5.2m: Target depth  |

|            |      |
|------------|------|
| COMMENTS   |      |
| Hole Depth | 5.2m |
| Scale 1:30 |      |

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# HAND AUGER LOG

HOLE ID: HA37  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918595.38 mN<br>(NZTM2000) 1763874.41 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 28.96m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM: NZVD2016   |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |       |         |        |           |             |            |                    |                                 |   |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|-------|---------|--------|-----------|-------------|------------|--------------------|---------------------------------|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING | MOISTURE CONDITION | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa)  | Description and Additional Observations                     |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |       |         |        |           |             |            |                    |                                 |   |   |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | Clayey SILT; yellowish brown and brown. Very stiff, moist, low plasticity.                                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | SILT, some clay; orange brown and light yellowish brown. Stiff, moist; low to no plasticity.                    |   |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | SILT; dark brown (topsoil). Firm, moist, non-plastic.   |   |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | Clayey SILT; yellowish brown. Very stiff, moist, low plasticity.  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | SILT, some clay; yellowish brown mottled light greyish white. Very stiff to stiff, moist; low to no plasticity. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | 2.0m: orange brown mottled light greyish white  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | 2.4m: trace sand; moist to wet  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | Clayey SILT; light whitish grey mottled yellowish brown. Stiff to very stiff, moist to wet, low plasticity.     |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |   | 3.0m: moist, light greyish brown mottled yellowish brown    |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |   | SILT; light brownish grey. Very stiff, moist, non-plastic.  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |   | Sandy SILT; light grey. Very stiff, moist, non-plastic.     |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |   | Clayey SILT; light grey. Very stiff, moist, low plasticity. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |   | SILT. Hard, moist, non-plastic.                             |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | Clayey SILT. Hard, dry to moist, non-plastic; Very difficult to auger.  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 |   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |            |                    |                                 | 5m: Target depth  |   |

|               |
|---------------|
| COMMENTS      |
| Hole Depth 5m |

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# HAND AUGER LOG

HOLE Id: **HA38**

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918615.71 mN<br>(NZTM2000) 1763870.20 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 32.94m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |                                |                   |        |                                   |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |             |              |          |           |             |                         |            |                                    |   |   |
|---|--------------------------------|-------------------|--------|-----------------------------------|---|---|---|---|---|-------------------------|---|---|-------------|--------------|----------|-----------|-------------|-------------------------|------------|------------------------------------|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER                          | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER<br>(Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS       | SAMPLES      | R.L. (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE<br>CONDITION   | WEATHERING | STRENGTH/DENSITY<br>CLASSIFICATION | SHEAR STRENGTH<br>(kPa)   | Description and<br>Additional Observations  |
|   |                                |                   |        | 1                                 | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |             |              |          |           |             |                         |            |                                    |   |   |
| Fill  | DRY: 16/11/2018<br>after 48hrs |                   |        |                                   |   |   |   |   |   |                         |   |   |             | ● 87/29 kPa  |          | 32        | 1           | [Cross-hatched pattern] | M          | St-Vst                             |   | Clayey SILT; yellowish brown and brown. Stiff to very stiff, moist, low plasticity; trace gravel. |
|   |                                |                   |        |                                   |   |   |   |   |   |                         |   |   |             | ● 104/38 kPa |          |           |             |                         |            |                                    |   | 1.0m: abundant fine gravel  |
|   |                                |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 83/29 kPa |              |          |           |             |                         | St         |                                    | Silty GRAVEL; dark brown. Moist; gravel, fine to medium.                  |   |
|   |                                |                   |        |                                   |   |   |   |   |   |                         |   |   | ● 89/30 kPa |              |          |           |             |                         |            |                                    | SILT, some clay; brown and yellowish brown. Stiff, moist, low plasticity. |   |
|   |                                |                   |        |                                   |   |   |   |   |   |                         |   |   |             |              |          |           |             |                         |            |                                    | 1.7m: Solid refusal on obstructions and gravel-three attempts             |   |
|   |                                |                   |        |                                   |   |   |   |   |   |                         |   |   |             |              |          |           |             |                         |            |                                    | 1.7m: Refusal   |   |

COMMENTS

Hole Depth 1.7m


Scale 1:30

# HAND AUGER LOG

HOLE Id: HA38A

SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918615.71 mN<br>(NZTM2000) 1763870.20 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 32.94m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |                              |                   |        |                                   |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |       |              |        |           |             |  |            |   |                         |   |
|---|------------------------------|-------------------|--------|-----------------------------------|---|---|---|---|---|-------------------------|---|---|-------|--------------|--------|-----------|-------------|--|------------|---|-------------------------|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER                        | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER<br>(Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS | SAMPLES      | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE<br>CONDITION  | WEATHERING | STRENGTH DENSITY<br>CLASSIFICATION  | SHEAR STRENGTH<br>(kPa) | Description and<br>Additional Observations  |
|   |                              |                   |        | 1                                 | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |       |              |        |           |             |  |            |   |                         |   |
| Fill  | DRY: 16/11/2018<br>301.43%MS |                   |        |                                   |   |   |   |   |   |                         |   |   |       | ● 116/29 kPa |        | 32        | 1           |  | M          | St-VSt  | 18-28                   | Drilled 2m West of 38. Topsoil, wet Clayey SILT, minor gravel; yellowish brown and brown. Stiff to very stiff, moist, low plasticity; gravel, fine. |
|   |                              |                   |        |                                   |   |   |   |   |   |                         |   |   |       | ● 50/14 kPa  |        |           |             | St   | 28-30      | SILT; grey and brown . Moist, non-plastic; abundant inclusions of gravel. |                         |   |
|   |                              |                   |        |                                   |   |   |   |   |   |                         |   |   |       |              | 31     | 2         |             |  |            |   | 30-32                   | Clayey SILT; yellowish brown, brown and grey. Moist; medium plasticity; abundant fine to medium scoria gravel.                                      |
|   |                              |                   |        |                                   |   |   |   |   |   |                         |   |   |       |              | 30     | 3         |             |  |            |   | 32-34                   | Gravelly SILT, some clay; brown . Stiff, moist, low plasticity; gravel, medium to coarse; Unable to penetrate further.                              |
|   |                              |                   |        |                                   |   |   |   |   |   |                         |   |   |       |              | 29     | 4         |             |  |            |   | 34-36                   | 1.8m: Refusal   |
|   |                              |                   |        |                                   |   |   |   |   |   |                         |   |   |       |              | 28     | 5         |             |  |            |   | 36-38                   |   |

|                 |
|-----------------|
| COMMENTS        |
| Hole Depth 1.8m |



# HAND AUGER LOG

HOLE Id: **HA39**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918651.91 mN<br>(NZTM2000) 1763836.27 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 13/11/2018     |
| R.L.: 43.51m  | DRILL METHOD: HA            | HOLE FINISHED: 13/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |       |         |        |           |             |                    |            |                                 |   |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|-------|---------|--------|-----------|-------------|--------------------|------------|---------------------------------|---|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa)  | Description and Additional Observations                             |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |       |         |        |           |             |                    |            |                                 |   |   |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 | SILT; dark brown. Very stiff, moist, non-plastic; abundant fine gravel.                       |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 | Clayey SILT; yellowish brown and dark brown. Stiff, moist, low plasticity; minor fine gravel. |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 | 1.0m: light grey, yellowish brown and reddish   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 | Clayey SILT; brown and grey. Stiff, moist, high plasticity.                                   |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 | 2.2m: inclusions of topsoil. Firm.  |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 |   | 2.8m: minor gravel. Stiff.  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 |   | 3.1m: low plasticity, yellowish brown, light grey and brown. Stiff. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 |   | 3.8m: minor gravel. Stiff.  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 |   | 5.1m: Target depth  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |       |         |        |           |             |                    |            |                                 |   |   |

|                 |
|-----------------|
| COMMENTS        |
| Hole Depth 5.1m |

# HAND AUGER LOG

HOLE Id: **HA40**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918614.35 mN<br>(NZTM2000) 1763832.83 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 43.70m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                |   |   |   |   |   | ENGINEERING DESCRIPTION |   |   |              |         |        |           |             |                    |            |                                 |                      |   |
|---|-------|-------------------|--------|--------------------------------|---|---|---|---|---|-------------------------|---|---|--------------|---------|--------|-----------|-------------|--------------------|------------|---------------------------------|----------------------|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER (Blows/0mm) |   |   |   |   |   |                         |   |   | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | MOISTURE CONDITION | WEATHERING | STRENGTH/DENSITY CLASSIFICATION | SHEAR STRENGTH (kPa) | Description and Additional Observations   |
|   |       |                   |        | 1                              | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9 |              |         |        |           |             |                    |            |                                 |                      |   |
| Fill  |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 75/6 kPa   |         | 43     |           |             | M                  | St         |                                 |                      | SILT, some clay; yellowish brown and grey. Stiff, moist; low to no plasticity.                |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 92/14 kPa  |         |        |           | D           |                    |            |                                 |                      | SILT; light greyish brown. Stiff, dry, non-plastic; friable.                                  |
| Topsoil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         |        |           |             |                    |            |                                 |                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● UTP        |         | 1      |           |             | M                  | VSt-H      |                                 |                      | SILT, some clay; orange brown. Hard to very stiff, moist, low plasticity.                     |
| Residual Soil   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 152/61 kPa |         |        |           |             |                    |            |                                 |                      | 1.2m: inclusions of topsoil   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 115/37 kPa |         |        |           |             |                    |            |                                 |                      |   |
| Residual East Coast Bays Formation Soils                              |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         | 42     |           |             |                    | H          |                                 |                      | SILT; dark brown. Hard, moist, non-plastic.   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 170/73 kPa |         |        |           |             | VSt                |            |                                 |                      | SILT; brown . Very stiff, moist, non-plastic.   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 124/60 kPa |         |        |           |             |                    |            |                                 |                      | Clayey SILT; yellowish brown mottled light greyish white. Very stiff, moist, high plasticity. |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● 102/44 kPa |         |        |           |             |                    |            |                                 |                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         | 41     |           |             |                    | H          |                                 |                      | SILT, some clay; light greyish brown mottled orange brown. Hard, moist, low plasticity.       |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         |        |           |             |                    |            |                                 |                      | Clayey SILT; light brownish grey. Hard, moist, low plasticity.                                |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● UTP        |         |        |           |             |                    |            |                                 |                      | SILT; light brownish grey. Hard, moist, non-plastic.  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         | 3      |           |             |                    |            |                                 |                      | 3.1m: light grey mottled orange   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● UTP        |         |        |           |             |                    |            |                                 |                      | 3.3m: grey  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● >201 kPa   |         | 40     |           |             |                    |            |                                 |                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● UTP        |         |        |           |             |                    |            |                                 |                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● UTP        |         | 4      |           |             |                    |            |                                 |                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   | ● UTP        |         |        |           |             |                    |            |                                 |                      | 4.3m: solid refusal, unable to auger  |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         | 39     |           |             |                    |            |                                 |                      | 4.3m: Refusal   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         | 5      |           |             |                    |            |                                 |                      |   |
|   |       |                   |        |                                |   |   |   |   |   |                         |   |   |              |         | 38     |           |             |                    |            |                                 |                      |   |






COMMENTS  
Hole Depth 4.3m  
Scale 1:30



# HAND AUGER LOG

HOLE Id: **HA41**  
SHEET: 1 OF 1

|   |                             |                              |
|---|-----------------------------|------------------------------|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000          |
| CO-ORDINATES: 5918612.01 mN<br>(NZTM2000) 1763799.31 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018     |
| R.L.: 43.00m  | DRILL METHOD: HA            | HOLE FINISHED: 14/11/2018    |
| DATUM NZVD2016  |                             | DRILLED BY: GEOTECHNICS      |
|   |                             | LOGGED BY: RBE CHECKED: JOTI |

| GEOLOGICAL  |       |                   |        |                                   |   |   |   |   |   | ENGINEERING DESCRIPTION |   |              |              |         |        |   |   |                       |            |                                    |   |  |
|---|-------|-------------------|--------|-----------------------------------|---|---|---|---|---|-------------------------|---|--------------|--------------|---------|--------|---|---|-----------------------|------------|------------------------------------|---|--|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER<br>(Blows/0mm) |   |   |   |   |   |                         |   |              | TESTS        | SAMPLES | RL (m) | DEPTH (m)   | GRAPHIC LOG   | MOISTURE<br>CONDITION | WEATHERING | STRENGTH/DENSITY<br>CLASSIFICATION | SHEAR STRENGTH<br>(kPa)   | Description and<br>Additional Observations   |
|   |       |                   |        | 1                                 | 2 | 3 | 4 | 5 | 6 | 7                       | 8 | 9            |              |         |        |   |   |                       |            |                                    |   |  |
| Fill  |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 155/23 kPa |         | 42     | 1   |    | D                     | VSt        |                                    |   | SILT; brown . Very stiff, dry; friable.  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 147/30 kPa |         |        |   | M   | VSt-H                 |            |                                    | SILT, minor clay; yellowish brown with grey inclusions and brown topsoil inclusions. Very stiff to hard, moist, low plasticity.   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 187/50 kPa |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 138/23 kPa |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 130/23 kPa |         |        |   |   |                       |            |                                    |   |  |
| Topsoil   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 188/30 kPa |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 147/37 kPa |         |        |   |   |                       |            |                                    |   |  |
| Residual Soil   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● >201 kPa   |         | 41     | 2   |  |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● >201 kPa   |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● >201 kPa   |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● >201 kPa   |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   |              | ● 145/73 kPa |         | 40     | 3   |  |                       | VSt        |                                    |   | SILT, some clay; yellowish brown. Hard, moist, low plasticity.<br>Clayey SILT; yellowish brown mottled light greyish white. Very stiff, moist, low plasticity. |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 172/90 kPa |              |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 115/57 kPa |              |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 115/47 kPa |              |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 118/46 kPa |              | 39      | 4      |  |   | VSt-H                 |            |                                    | SILT, some clay; light greyish white mottled yellowish brown. Very stiff to hard, moist, low plasticity.<br>4.0m: light brown mottled yellowish brown, orange brown, grey |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 126/53 kPa |              |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 161/53 kPa |              |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● >201 kPa   |              |         |        |   |   |                       |            |                                    |   |  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● 195/89 kPa |              | 38      | 5      |  |   |                       |            |                                    |   | 4.9m: grey mottled orange brown  |
|   |       |                   |        |                                   |   |   |   |   |   |                         |   | ● >201 kPa   |              |         |        |   |   |                       |            |                                    |   | 5.2m: Target depth   |

COMMENTS

Hole Depth 5.2m

Scale 1:30

# HAND AUGER LOG

HOLE Id: HA42  
SHEET: 1 OF 1

|   |                             |   |
|---|-----------------------------|---|
| PROJECT: Ryman Site 3                                   | LOCATION: Kohimarama Road   | JOB No.: 30314.0000                                   |
| CO-ORDINATES: 5918586.80 mN<br>(NZTM2000) 1763808.75 mE | DRILL TYPE: 50mm hand auger | HOLE STARTED: 14/11/2018<br>HOLE FINISHED: 14/11/2018 |
| R.L.: 45.26m  | DRILL METHOD: HA            | DRILLED BY: GEOTECHNICS                               |
| DATUM: NZVD2016   |                             | LOGGED BY: JOTI CHECKED: RBE                          |

| GEOLOGICAL  |       |                   |        |                                   |   |   |   |   |   |   | ENGINEERING DESCRIPTION |       |              |         |        |           |             |            |                                 |                    |                      |  |   |
|---|-------|-------------------|--------|-----------------------------------|---|---|---|---|---|---|-------------------------|-------|--------------|---------|--------|-----------|-------------|------------|---------------------------------|--------------------|----------------------|--|---|
| GEOLOGICAL UNIT,<br>GENERIC NAME,<br>ORIGIN,<br>MATERIAL COMPOSITION. | WATER | CORE RECOVERY (%) | METHOD | SCALA PENETROMETER<br>(Blows/0mm) |   |   |   |   |   |   |                         |       | TESTS        | SAMPLES | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING | STRENGTH DENSITY CLASSIFICATION | MOISTURE CONDITION | SHEAR STRENGTH (kPa) | Description and Additional Observations  |   |
|   |       |                   |        | 1                                 | 2 | 3 | 4 | 5 | 6 | 7 | 8                       | 9     |              |         |        |           |             |            |                                 |                    |                      |  |   |
| Topsoil   |       |                   |        |                                   |   |   |   |   |   |   |                         |       |              |         |        |           |             |            |                                 |                    |                      | SILT; light brown. Very stiff, dry, non-plastic.   |   |
| Residual Soil   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● >224 kPa   | 45      |        |           | D           | H          |                                 |                    |                      | Clayey SILT; light brown. Very stiff, dry, non-plastic; very crumbly.<br>0.3m: Trace sand. Sand, fine. |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● 184/16 kPa |         |        |           | VSt-H       |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● 167/32 kPa |         |        |           |             |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● 221/38 kPa | 1       |        |           |             |            |                                 |                    |                      |  | SILT; orange yellow brown. Very stiff, dry, non-plastic; very crumbly.    |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● 173/51 kPa | 44      |        |           |             |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        |         |        |           |             | H          |                                 |                    |                      |  | Clayey SILT; light tan brown. Very stiff, dry, non-plastic; very crumbly. |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        |         |        |           |             |            |                                 |                    |                      |  | SILT; rusty orange. Very stiff, dry, non-plastic; very crumbly.           |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        | 2       |        |           | M           |            |                                 |                    |                      |  | Clayey SILT; light tan mottled rusty. Very stiff, moist, non-plastic.     |
| Residual East Coast Bays Formation                                    |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● >224 kPa   | 43      |        |           |             |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        |         |        |           |             |            |                                 |                    |                      |  | SILT; dark orange rusty. Very stiff, dry, non-plastic.                    |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        |         |        |           |             |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        | 3       |        |           |             |            |                                 |                    |                      |  | Clayey SILT; blue grey. Very stiff, dry, non-plastic.                     |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        | 42      |        |           |             |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         |       | ● UTP        |         |        |           |             |            |                                 |                    |                      |  |   |
|   |       |                   |        |                                   |   |   |   |   |   |   |                         | ● UTP | 4            |         |        |           |             |            |                                 |                    |                      |  | 4m: Refusal   |

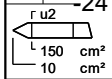
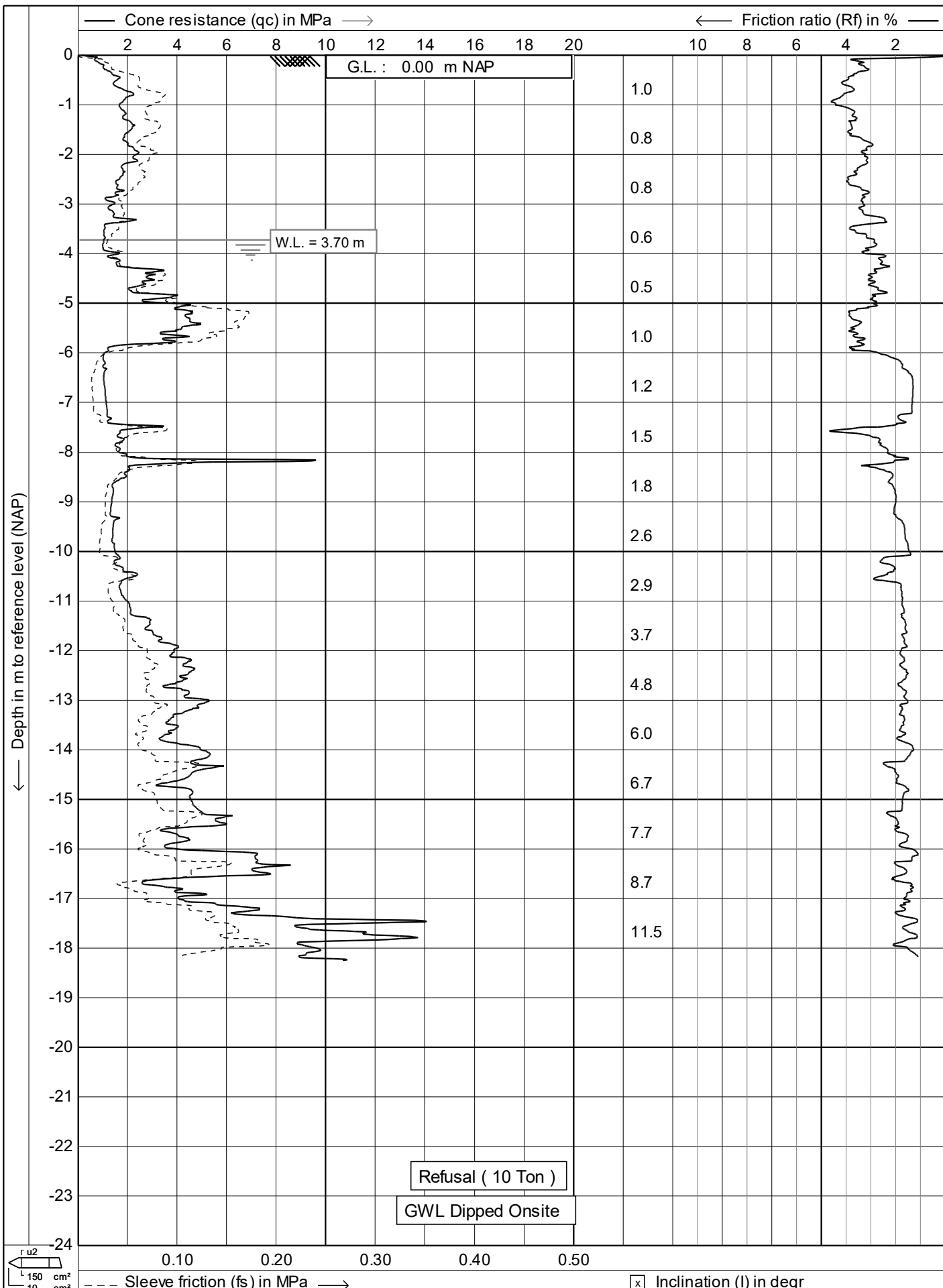
COMMENTS

Hole Depth  
4m

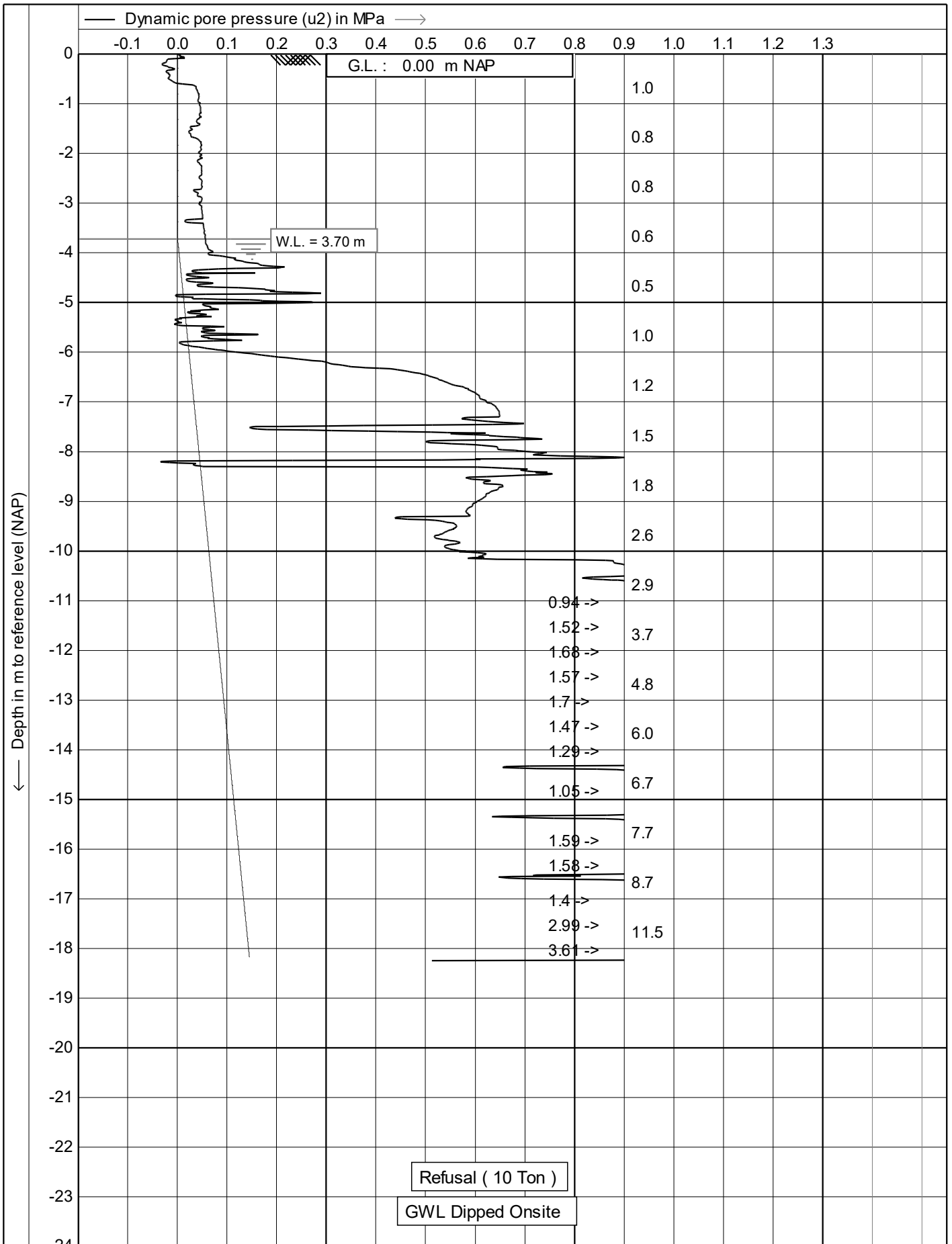
Scale 1:30







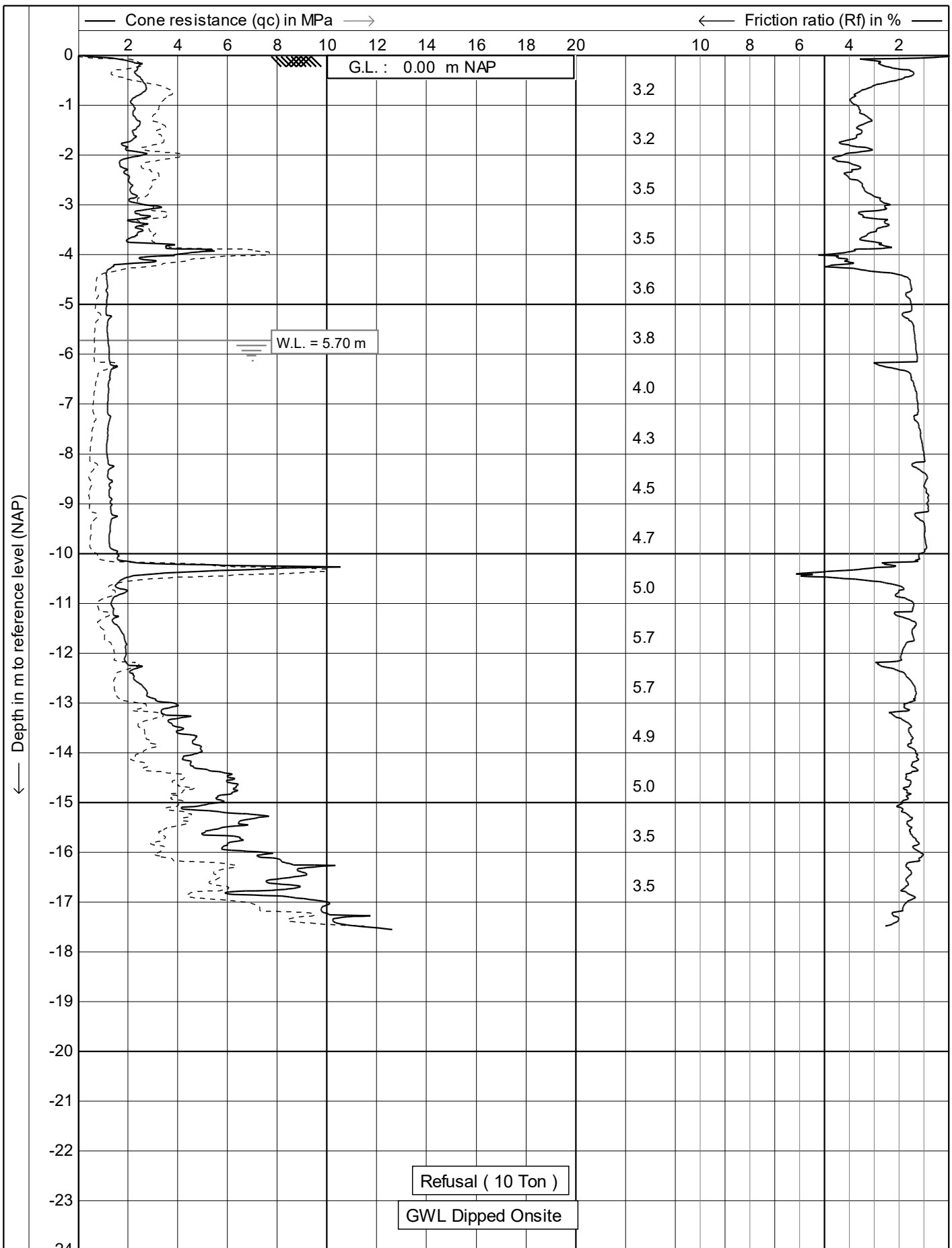
|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 11/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 01      1/14    |



r u2  
150 cm<sup>2</sup>  
10 cm<sup>2</sup>

--- Equilibrium pore pressure ( $u_0$ ) in MPa →       Inclination (I) in degr

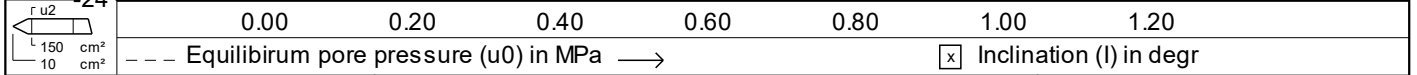
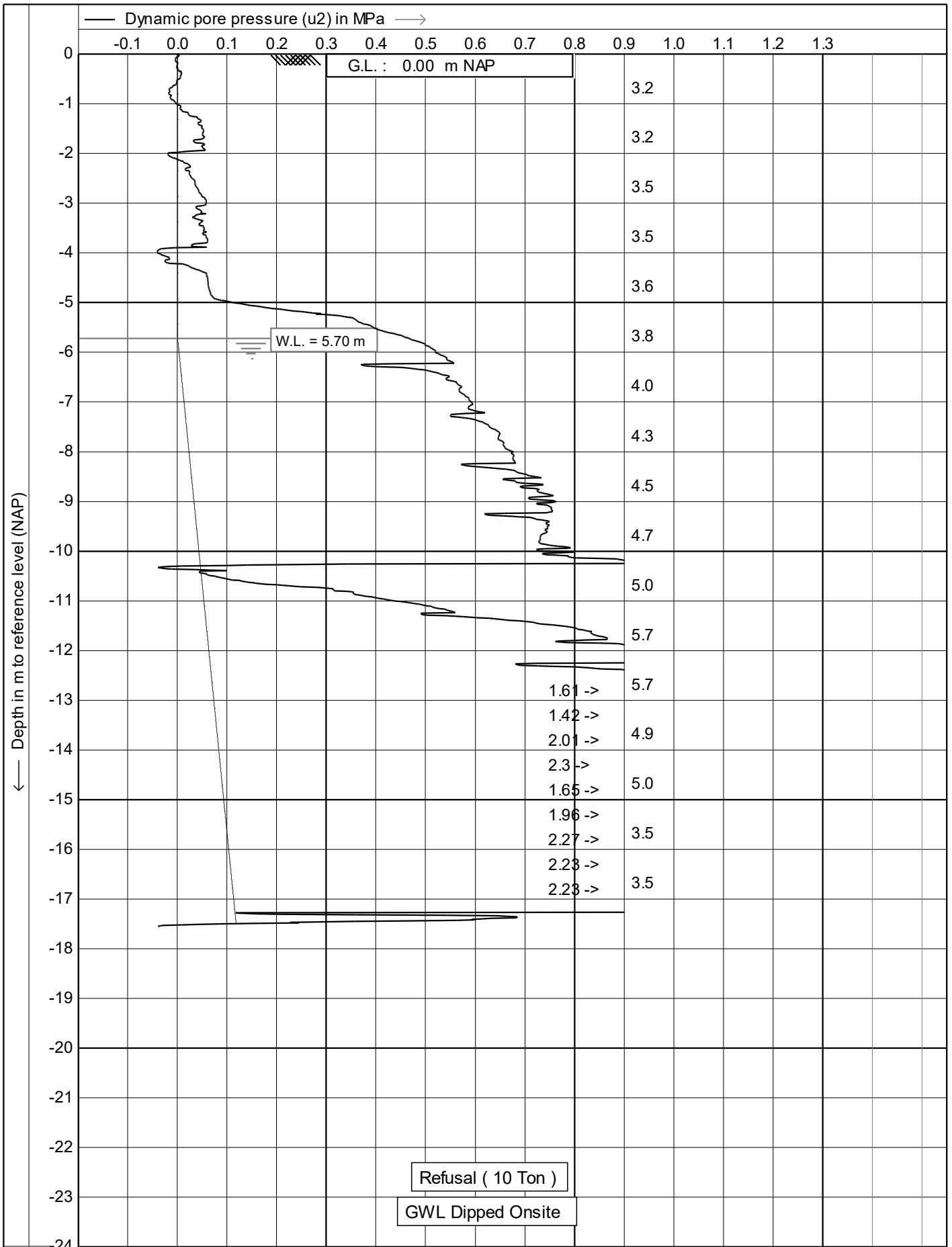
|  |   |  |                           |      |
|--|---|--|---------------------------|------|
|  | Test according A.S.T.M Standard D 5778-12 |  | Date : 11/10/2018         |      |
|  | Project : Site Investigations             |  | Cone no. : C10CFIP.C13184 |      |
|  | Location: John Rymer PI - Kohimarama      |  | Project no. : 01TT05      |      |
|  | Position: 0, 0 RD                         |  | CPT no. : 01              | 2/14 |



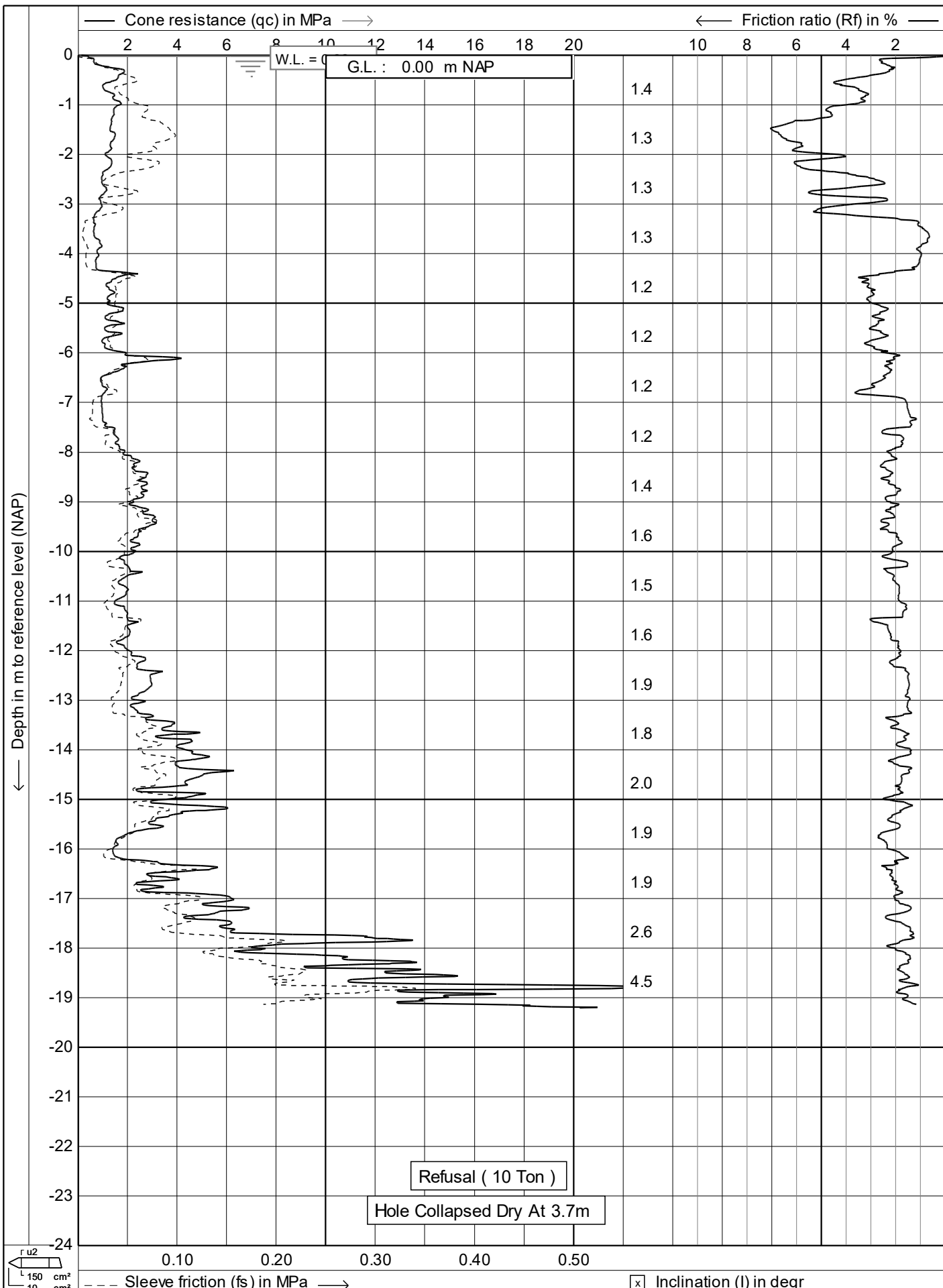
Inclusion (I) in degr  
 --- Sleeve friction (fs) in MPa ---

|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 11/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 02              |
|  |   | 1/14                      |

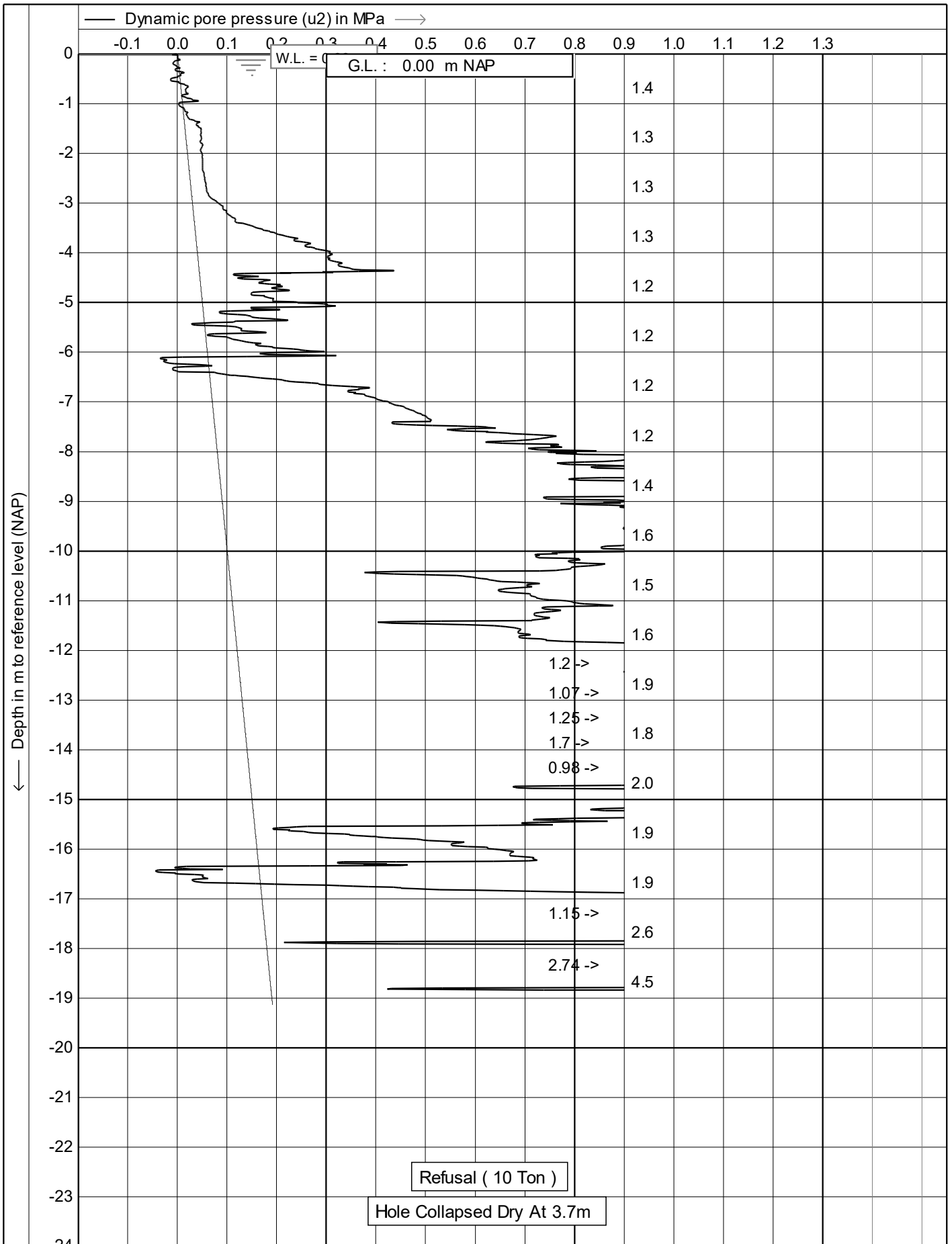




|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 11/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 02              |
|  |   | 2/14                      |



|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 10/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 03              |
|  |   | 1/14                      |



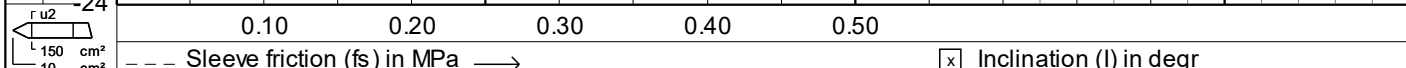
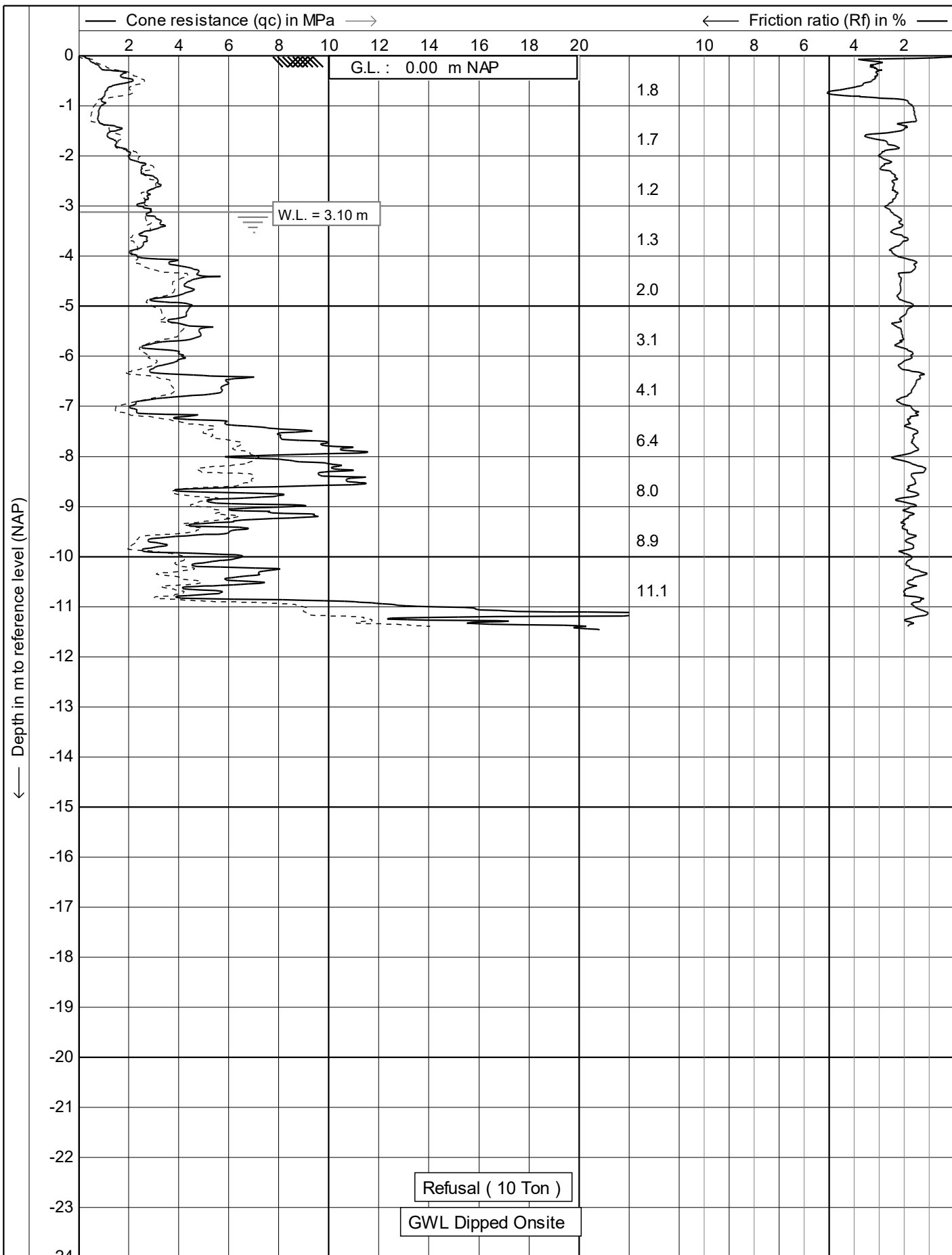
$\frac{r}{u_2}$   
 $\frac{L}{150 \text{ cm}^2}$   
 $\frac{10}{\text{cm}^2}$ 

 --- Equilibrium pore pressure (u0) in MPa →
 

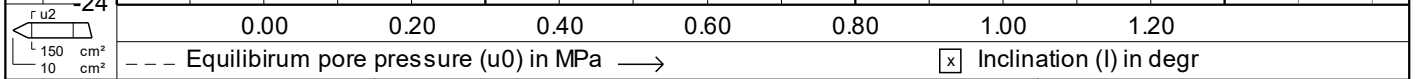
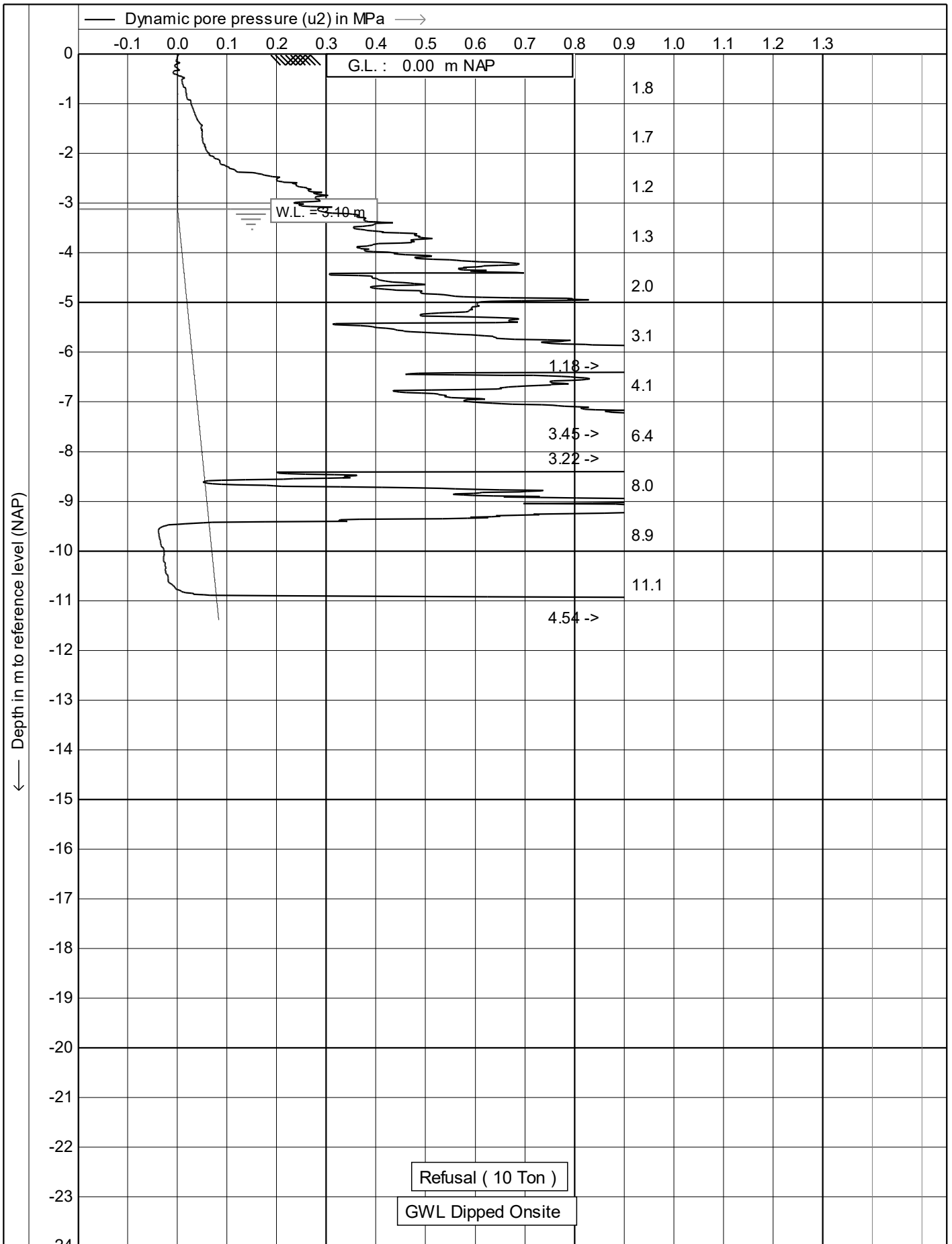
 Inclination (I) in degr

|  |   |                                  |
|--|---|----------------------------------|
|  | Test according A.S.T.M Standard D 5778-12   | Date : <b>10/10/2018</b>         |
|  | Project : <b>Site Investigations</b>        | Cone no. : <b>C10CFIP.C13184</b> |
|  | Location: <b>John Rymer PI - Kohimarama</b> | Project no. : <b>01TT05</b>      |
|  | Position: <b>0, 0 RD</b>                    | CPT no. : <b>03</b>              |
|  |   | <b>2/14</b>                      |

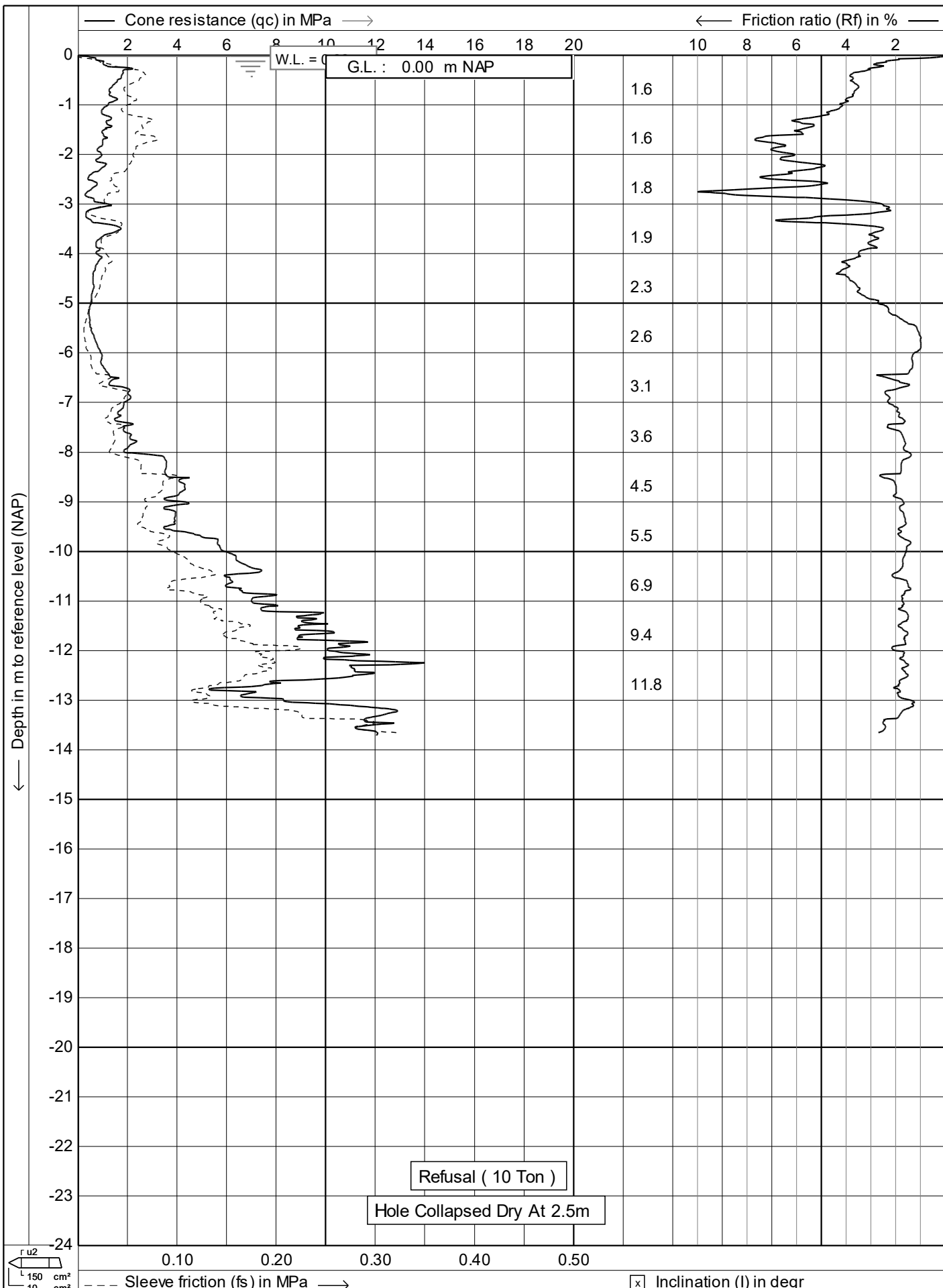




|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 10/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 04              |
|  |   | 1/14                      |



|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 10/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 04              |
|  |   | 2/14                      |



|  |   |                           |
|--|---|---------------------------|
|  | Test according A.S.T.M Standard D 5778-12 | Date : 10/10/2018         |
|  | Project : Site Investigations             | Cone no. : C10CFIP.C13184 |
|  | Location: John Rymer PI - Kohimarama      | Project no. : 01TT05      |
|  | Position: 0, 0 RD                         | CPT no. : 05      1/14    |