



Golder Boreholes 2013



REPORT OF BOREHOLE: BH1

CLIENT: Ports North

COORDS: S 16° 56.4406' E 145° 46.9976'

SHEET: 1 OF 1

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -5.10 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122


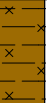



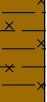








HOLE DEPTH: 5.15 m

LOGGED: JKW

DATE: 5/8/13

CHECKED: JJP

DATE: 8/8/13

| Drilling | | | | | Sampling | Field Material Description | | | | | | | | | | | |
|----------|------------------------|-------|----------------|---|--|---|---|--|---|--------------------|-------------|---------|---------------------------------------|--|--|----|--|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY | DENSITY | STRUCTURE AND ADDITIONAL OBSERVATIONS | | | | |
| RD | L | | 0 | -5.10 | BH1-001 U75 0.10-0.50 m Rec = 400/400 mm PP = <0.1 kg/cm^2 Sv = <0.1 kg/cm^2 |  |  | CH | Silty CLAY high plasticity, grey, with some shells | | VS | | Inner Harbour | | | | |
| | | | 1 | BH1-002 U75 1.10-1.50 m Rec = 400/400 mm PP = 0.2 kg/cm^2 Sv = < 0.1 kg/cm^2 |  |  | | | | | | | | | | | |
| | | | 2 | 2.10 -7.20 | BH1-003 U75 2.10-2.50 m Rec = 400/400 mm |  |  | | trace organics | | | | | | | | |
| | | | 3 | Insitu Shear Vane at 2.5m Sv = 10 kPa |  |  | | | | | | | | | | | |
| | | | 4 | 4.00 -9.10 | BH1-004 U75 3.10-3.50 m Rec = 400/400 mm PP = 0.6-0.8 kg/cm^2 Sv = 0.2 kg/cm^2 Insitu Shear Vane at 3.5m Sv = 15 kPa |  |  | | | | | | | | | | |
| | | | 5 | BH1-005 U75 4.10-4.50 m Rec = 400/400 mm PP = 2.0-2.3 kg/cm^2 Sv = 0.65 kg/cm^2 |  |  | | grey and brown, with some shells, trace organics | | | | | | | | | |
| | | | | BH1-006 Rec = 450/450 mm SPT 4.70-5.15 m 3, 3, 6 N=9 |  |  | | | | | | | | | | | |
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This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH2

CLIENT: Ports North

COORDS: S 16° 55.5741' E 145° 47.0603'

SHEET: 1 OF 1

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -6.20 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122

HOLE DEPTH: 4.55 m

LOGGED: JKW

DATE: 30/7/13

CHECKED: JJP

DATE: 8/8/13

| Drilling | | | | | Sampling | Field Material Description | | | | | | | |
|----------|------------------------|-------|----------------|---|--|----------------------------|--|---|--------------------------------|--------------------|-------------|---------------|---------------------------------------|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY | DENSITY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| RD | L | | 0 | -6.20 | BH2-001 U75 1.10-1.50 m Rec = 400/400 mm PP = 0.2-0.5 kg/cm^2 Sv = <0.1 kg/cm^2 BH2-002 U75 2.10-2.50 m Rec = 400/400 mm PP= 0.5-0.75 kg/cm^2 Sv = 0.4 kg/cm^2 BH2-003 Rec = 450/450 mm SPT 3.10-3.55 m 5, 7, 10 N=17 BH2-004 Rec = 450/450 mm SPT 4.10-4.55 m 6, 10, 13 N=23 | | | Silty CLAY high plasticity, grey, with some shells | | | VS | Inner Harbour | |
| | | | 1 | | | | | | | | | | |
| 2 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | |
| M | | | 3.10 -9.30 | | | | grey and yellow brown pockets, with some shells | | VSt | | | | |
| | | | 4 | | | | | | | | | | |
| | | | -10.75 | Insitu Shear Vane at 4.55m Sv= 13kPa | | | END OF BOREHOLE @ 4.55 m TARGET DEPTH DRILLED OVER WATER | | | | | | |
| | | | 5 | | | | | | | | | | |
| | | | 6 | | | | | | | | | | |

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH3

CLIENT: Ports North

COORDS: S 16° 55.0414' E 145° 47.1200'

SHEET: 1 OF 1

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -7.60 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122













HOLE DEPTH: 5.25 m

LOGGED: JJP

DATE: 29/7/13

CHECKED: RJ

DATE: 8/8/13

| Drilling | | | | | Sampling | | Field Material Description | | | | | | | |
|----------|------------------------|-------|----------------|--|--|---|---|--|--|--------------------|-------------|---------------------------------------|--|--|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY | STRUCTURE AND ADDITIONAL OBSERVATIONS | | |
| RD | L | | 0 | -7.60 | BH3-001 U75 0.40-0.80 m Rec = 400/400 mm PP= 3.3-3.7 kg/cm^2 Sv = 1.8-2.0 kg/cm^2 |  |  | CH | Silty CLAY high plasticity, pale orange brown, trace organics in surfical layer | | F - St | Inner Channel | | |
| | | | 0.40 -8.00 | pale grey with pale orange brown pockets | | | | | | | | | | |
| | M | | 1 | 1.40 -9.00 | BH3-002 U75 1.40-1.80 m Rec = 400/400 mm PP = 3.6- 4.7 kg/cm^2 Sv = 1.6-2.4 kg/cm^2 |  |  | | trace lower strength seams (<100mm thickness), trace cemented nodules (<5mm) | | VSt | | | |
| | | | 2 | 2.50 -10.10 | BH3-003 U75 2.40-2.63 m Rec = 230/230 mm PP = 4.2-4.5 kg/cm^2 Sv = 1.75-1.90 kg/cm^2 |  |  | | pale green grey with pale orange brown pockets, with some interbedded seams (<50 mm thickness) comprising increased silt content | | | | | |
| | 3 | | | BH3-004 Rec = 230/450 mm SPT 2.80-3.25 m 6, 9, 10 N=19 |  |  | | | | | | | | |
| | 4 | | 4.25 -11.85 | BH3-005 Rec = 380/450 mm SPT 3.80-4.25 m 4, 7, 9 N=16 |  |  | | pale brown with pale grey pockets, increasing silt content with depth, trace weakly to moderately cemented nodules (<10 mm), black | | | | | | |
| | 5 | | | BH3-006 Rec = 450/450 mm SPT 4.80-5.25 m 4, 7, 10 N=17 |  |  | | | | | | | | |
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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH4

CLIENT: Ports North
 PROJECT: Cairns Shipping Development Project (EIS)
 LOCATION: Trinity Inlet, Cairns
 JOB NO: 137632122

COORDS: S 16° 54.3445' E 145° 47.2424'
 SURFACE RL: -8.40 m DATUM: LAT
 INCLINATION: -90° DIRECTION: 000°
 HOLE DEPTH: 5.85 m

SHEET: 1 OF 1
 DRILL RIG: HYDRA SCT
 CONTRACTOR: Geo Investigate
 LOGGED: JKW DATE: 31/7/13
 CHECKED: JJP DATE: 8/8/13

| Drilling | | | | | Sampling | Field Material Description | | | | | | | | | | | | |
|----------|------------------------|-------|----------------|----------|--|----------------------------|-------------|--|--------------------------------|--------------------|---------------------|---|--|-----------------------|--|---|--|--|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY DENSITY | STRUCTURE AND ADDITIONAL OBSERVATIONS | | | | | | |
| RD | L | | 0 | -8.40 | BH4-001 U75 2.40-2.80 m Rec = 400/400 mm PP = 0.15-0.2 kg/cm^2 Sv = <0.1 kg/cm^2 | | CH | Silty CLAY high plasticity, grey and brown, trace fine grained sand | | VS | Approx. CH 15180 | | | | | | | |
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| | | | 3 | | | | | | | | | | | | | | | |
| | | | 3.50 | -11.90 | | | | | | | | BH4-002 U75 3.40-3.80 m Rec = 400/400 mm PP = 0.4-0.5 kg/cm^2 Sv = <0.1 kg/cm^2 | | trace shell fragments | | | | |
| | | | 4 | | | | | | | | | | | | | | | |
| | | | 4.50 | -12.90 | | | | | | | | BH4-003 U75 4.40-4.80 m Rec = 400/400 mm PP = 2.1-2.9 kg/cm^2 Sv = 0.7 kg/cm^2 | | | | grey and yellow brown pockets, trace shells | | |
| | | | 5 | | | | | | | | | | | | | | | |
| | | | 6 | -14.25 | | | | | | | | BH4-004 Rec = 450/450 mm SPT 5.40-5.85 m 7, 9, 12 N=21 | | | | | | |
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This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
 RL3



REPORT OF BOREHOLE: BH5

CLIENT: Ports North

COORDS: S 16° 53.2749' E 145° 47.8804'

SHEET: 1 OF 2

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -1.70 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122

HOLE DEPTH: 12.10 m

LOGGED: JKW

DATE: 1/8/13

CHECKED: JJP

DATE: 8/8/13

| Drilling | | | | Sampling | | | | Field Material Description | | | |
|----------|------------------------|-------|----------------|----------|--|-----------|-------------|----------------------------|---|--------------------|---------------------------------------|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | 0 | -1.70 | | | | CL CH | Silty CLAY medium to high plasticity, grey, with some shells | | Approx. CH 17260 |
| | | | 1 | | | | | | | | |
| | | | 2 | | | | | | | | |
| | | | 3 | | BH5-001 U75 2.40-2.80 m Rec = 360/400 mm PP = 0.1-0.2 kg/cm ² Sv = < 0.1 kg/cm ² | | | | | | |
| | | | 4 | | BH5-002 U75 3.40-3.80 m Rec = 400/400 mm PP = < 0.1 kg/cm ² Sv = < 0.1 kg/cm ² Insitu Shear Vane at 3.8m Sv = 10 kPa | | | | | VS | |
| | | | 5 | | BH5-003 U75 4.40-4.80 m Rec = 400/400 mm PP = < 0.1 kg/cm ² Sv = < 0.1 kg/cm ² | | | | | | |
| | | | 6 | | BH5-004 U75 5.40-5.80 m Rec = 400/400 mm PP = < 0.1 kg/cm ² Sv = < 0.1 kg/cm ² Insitu Shear Vane at 5.8m Sv = 10 kPa | | | | | | |
| | | | 7 | 7.00 | BH5-005 Rec = 450/450 mm SPT 6.40-6.85 m 0, 0, 0 N=HW | | | | | | |

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH5

CLIENT: Ports North

COORDS: S 16° 53.2749' E 145° 47.8804'

SHEET: 2 OF 2

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -1.70 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122

HOLE DEPTH: 12.10 m

LOGGED: JKW

DATE: 1/8/13

CHECKED: JJP

DATE: 8/8/13

| Drilling | | | | | Sampling | Field Material Description | | | | | | |
|----------|------------------------|-------|----------------|--|--|----------------------------|-------------|-------------|--|--------------------|---------------------|---------------------------------------|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY DENSITY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| RD | L | | 7 | -8.70 | BH5-006 U75 7.40-7.90 m Rec = 400/500 mm PP = 0.4-0.5 kg/cm^2 Sv = < 0.1 kg/cm^2 | | | CH | Silty CLAY medium to high plasticity, grey, with some shells high plasticity | | S | Approx. CH 17260 |
| | | | 8 | Insitu Shear Vane at 7.9m Sv = 14 kPa | | | CH | | | | | |
| | | | 9 | | BH5-007 U75 8.40-8.80 m Rec = 400/400 mm PP = 0.2-0.3 kg/cm^2 Sv = < 0.1 kg/cm^2 | | | | | | | |
| | | | 9.20 | -10.90 | | | | | layer of sand (~200mm thickness) | | S | |
| | | | | | BH5-008 U75 9.40-9.80 m Rec = 400/400 mm PP = < 0.1 kg/cm^2 Sv = < 0.1 kg/cm^2 | | | | | | | |
| | | | 10 | | | | | | | | | |
| | | | | | BH5-009 U75 10.40-10.80 m Rec = 400/400 mm PP = 0.2-0.3 kg/cm^2 Sv = < 0.1 kg/cm^2 | | | | | | | |
| | | | 11 | | | | | | | | | |
| | | | | | BH5-010 U63 11.40-11.80 m Rec = 400/400 mm PP = 0.1-0.2 kg/cm^2 Sv = < 0.1 kg/cm^2 | | | | | | | |
| | | | 12 | | | | | | | | | |
| | | | | -13.80 | | | | | END OF BOREHOLE @ 12.10 m TARGET DEPTH DRILLED OVER WATER | | | |
| | | | 13 | | | | | | | | | |

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH6

CLIENT: Ports North

COORDS: S 16° 51.9879' E 145° 48.6458'

SHEET: 1 OF 2

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -4.00 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122















HOLE DEPTH: 9.95 m

LOGGED: JKW

DATE: 2/8/13

CHECKED: JJP

DATE: 8/8/13

| Drilling | | | | | Sampling | | Field Material Description | | | | | | | | |
|----------|------------------------|-------|----------------|--|---|---|---|-------------|---|--------------------|---------------------|---------------------------------------|--|--|--|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY DENSITY | STRUCTURE AND ADDITIONAL OBSERVATIONS | | | |
| RD | | | 0 | -4.00 | BH6-001 U75 0.00-0.40 m Rec = 400/400 mm PP = < 0.1 kg/cm^2 Sv = <0.1 kg/cm^2 |  |  | CH | Silty CLAY medium to high plasticity, grey, with some shells | | VS | Approx. CH 19985 | | | |
| | | | 1 | BH6-002 U75 1.00-1.40 m Rec = 400/400 mm PP = < 0.1 kg/cm^2 Sv = <0.1 kg/cm^2 Insitu Shear Vane at 1.4m Sv = 5 kPa |  |  | | | | | | | | | |
| | | | 2 | BH6-003 U75 2.00-2.40 m Rec = 400/400 mm PP1 = <0.1 kg/cm^2 Sv= <0.1 kg/cm^2 |  |  | | | | | | | | | |
| | | | 3 | BH6-004 U75 3.00-3.40 m Rec = 400/400 mm PP = < 0.2 kg/cm^2 Sv = <0.1 kg/cm^2 Insitu Shear Vane at 3.4m Sv = 4 kPa |  |  | | | | | | | | | |
| | | | 4 | BH6-005 U75 4.00-4.40 m Rec = 400/400 mm PP = < 0.1 kg/cm^2 Sv = <0.1 kg/cm^2 |  |  | | | | | | | | | |
| | | | 5 | 5.00 -9.00 | BH6-006 U75 5.00-5.40 m Rec = 400/400 mm PP = 0.5-0.6 kg/cm^2 Sv = <0.1 kg/cm^2 Insitu Shear Vane at 5.4m Sv = 17 kPa |  |  | CH | | | | | | | |
| | | | 6 | 6.00 -10.00 | BH6-007 U75 6.00-6.40 m Rec = 400/400 mm PP = 0.8 - 1.3kg/cm^2 Sv = 0.3 kg/cm^2 |  |  | | | | | | | | |
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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: BH6

CLIENT: Ports North
 PROJECT: Cairns Shipping Development Project (EIS)
 LOCATION: Trinity Inlet, Cairns
 JOB NO: 137632122

COORDS: S 16° 51.9879' E 145° 48.6458'
 SURFACE RL: -4.00 m DATUM: LAT
 INCLINATION: -90° DIRECTION: 000°
 HOLE DEPTH: 9.95 m

SHEET: 2 OF 2
 DRILL RIG: HYDRA SCT
 CONTRACTOR: Geo Investigate
 LOGGED: JKW DATE: 2/8/13
 CHECKED: JJP DATE: 8/8/13

| Drilling | | | | Sampling | | Field Material Description | | | | | | | |
|----------|------------------------|-------|----------------|----------|--|----------------------------|-------------|-------------|---|--------------------|-------------|---------|---------------------------------------|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | CONSISTENCY | DENSITY | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| RD | M | | 7 | | BH6-008 Rec = 450/450 mm SPT 7.00-7.45 m 3, 4, 6 N=10 | | | CL-CH | Silty CLAY medium to high plasticity, grey, with some shells | | | | Approx. CH 19985 |
| | | | 8 | | BH6-009 Rec = 450/450 mm SPT 8.00-8.45 m 3, 5, 6 N=11 | | | | | | | | |
| | | | 9 | | BH6-010 Rec = 450/450 mm SPT 8.50-8.95 m 4, 5, 6 N=11 | | | | | | St | | |
| | | | 9.50 -13.50 | | BH6-011 Rec = 450/450 mm SPT 9.50-9.95 m 4, 5, 10 N=15 | | | | with some medium to coarse grained sand | | | | |
| | | | 10 | -13.95 | | | | | END OF BOREHOLE @ 9.95 m TARGET DEPTH DRILLED OVER WATER | | | | |
| | | | 11 | | | | | | | | | | |
| | | | 12 | | | | | | | | | | |
| | | | 13 | | | | | | | | | | |

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
 RL3



REPORT OF BOREHOLE: BH7

CLIENT: Ports North

COORDS: S 16° 50.5967' E 145° 49.3973'

SHEET: 1 OF 1

PROJECT: Cairns Shipping Development Project (EIS)

SURFACE RL: -6.90 m DATUM: LAT

DRILL RIG: HYDRA SCT

LOCATION: Trinity Inlet, Cairns

INCLINATION: -90° DIRECTION: 000°

CONTRACTOR: Geo Investigate

JOB NO: 137632122

HOLE DEPTH: 5.90 m

LOGGED: JKW

DATE: 1/8/13

CHECKED: JJP

DATE: 8/8/13

| Drilling | | | | Sampling | | | | Field Material Description | | | |
|----------|------------------------|-------|----------------|----------|---|-----------|-------------|----------------------------|--|--------------------|---------------------------------------|
| METHOD | PENETRATION RESISTANCE | WATER | DEPTH (metres) | DEPTH RL | SAMPLE OR FIELD TEST | RECOVERED | GRAPHIC LOG | USCS SYMBOL | SOIL/ROCK MATERIAL DESCRIPTION | MOISTURE CONDITION | STRUCTURE AND ADDITIONAL OBSERVATIONS |
| | | | 0 | -6.90 | | | | CL-CH | Silty CLAY medium to high plasticity, grey, with some shells | | Approx. CH 22715 |
| | | | 1 | | | | | | | | |
| | | | 2 | | BH7-001 PT 1.70-2.10 m Rec = 0/400 mm | | | | | VS | |
| | | | 3 | | BH7-002 U75 3.20-3.60 m Rec = 400/400 mm PP = 0.1-0.4 kg/cm ² Sv = < 0.1 kg/cm ² | | | | | | |
| | | | 4 | 4.20 | | | | | | | |
| | | | 5 | -11.10 | BH7-003 U75 4.20-4.60 m Rec = 400/400 mm PP = 1.0-1.2 kg/cm ² Sv = 0.2 kg/cm ² Insitu Shear Vane at 4.6m Sv = >28 kPa | | | | grey and brown and yellow brown pockets | | St - VS |
| | | | 6 | -12.80 | BH7-004 Rec = 450/450 mm SPT 5.45-5.90 m 4, 7, 9 N=16 | | | | | | |
| | | | 7 | | | | | | END OF BOREHOLE @ 5.90 m TARGET DEPTH DRILLED OVER WATER | | |

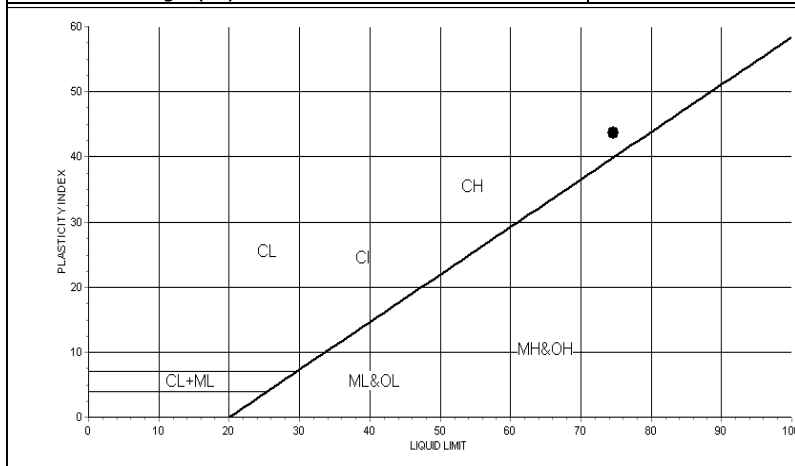
This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 1 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303492 | BH1 (0.1-0.5 m) | |
| Date Sampled / Received: | 12/08/2013 | 001 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | | Test Method | Specification Minimum | Result | Specification Maximum |
|-------------------------|----------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: | Oven Dried low temp. | | | | |
| Moisture Content (%):°C | 105 to 110 | AS1289.2.1.1 | - | 86.2 | - |
| Liquid Limit (%) | | AS1289.3.1.2 | | 75 | |
| Plastic Limit (%) | | AS1289.3.2.1 | | 31 | |
| Plasticity Index (%) | | AS1289.3.3.1 | | 44 | |
| Linear Shrinkage (%) | | AS1289.3.4.1 | | 17.5 | |



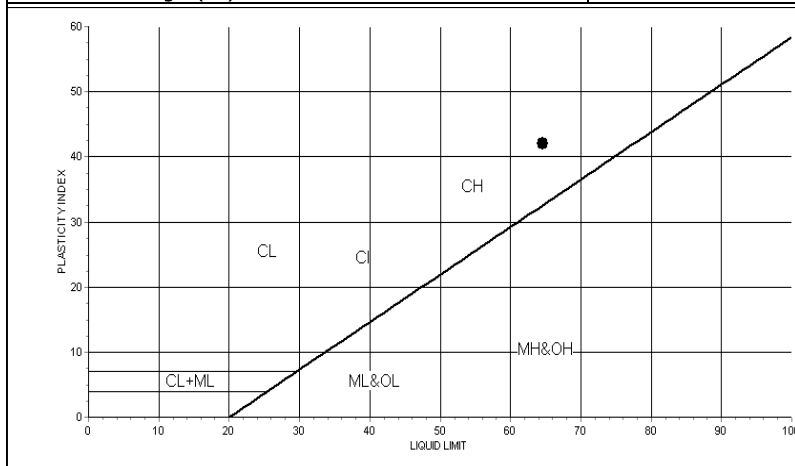
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 2 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303493 | BH1 (2.1-2.5 m) | |
| Date Sampled / Received: | 12/08/2013 | 003 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 77.8 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 65 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 23 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 42 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 16.0 | |

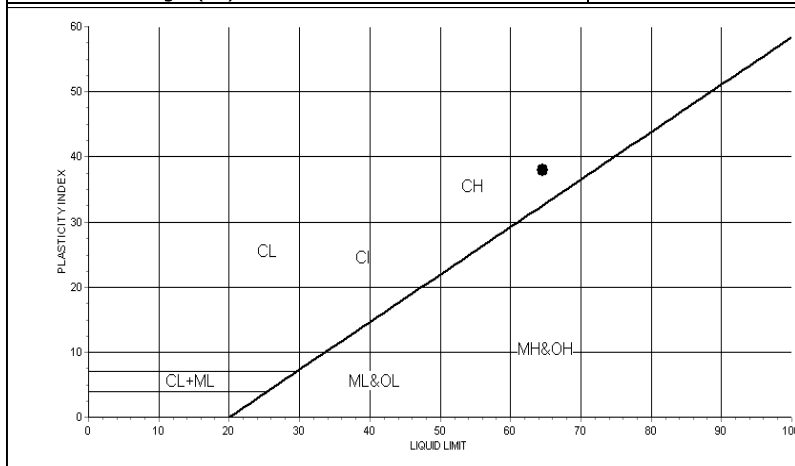

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 3 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303494 | BH1 (3.1-3.5 m) | |
| Date Sampled / Received: | 12/08/2013 | 004 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 88.1 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 65 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 27 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 38 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 14.5 | |



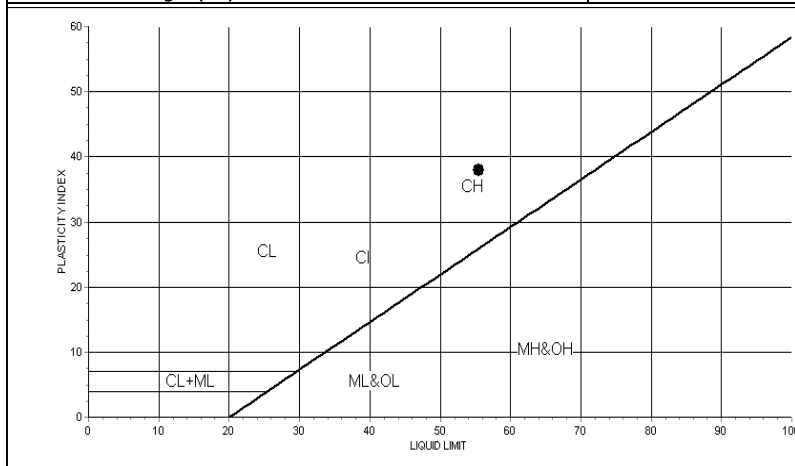
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 4 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303495 | BH1 (4.1-4.5 m) | |
| Date Sampled / Received: | 12/08/2013 | 005 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%): ^{°C} 105 to 110 | AS1289.2.1.1 | - | 40.6 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 55 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 18 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 37 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 16.5 | |

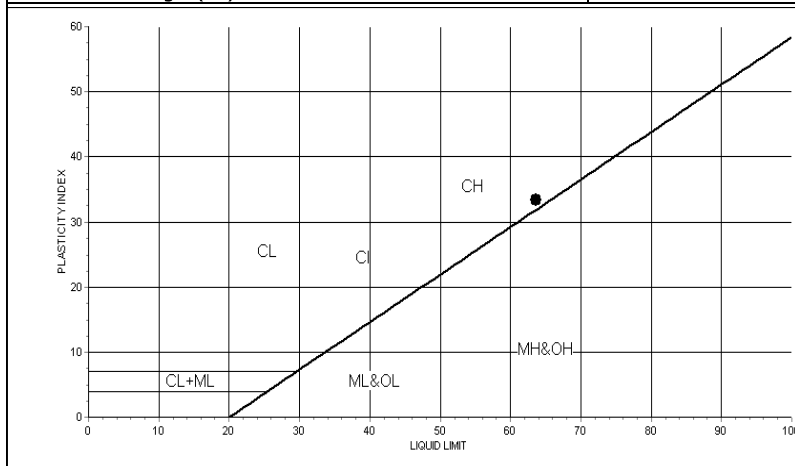

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 5 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303497 | BH2 (2.1-2.5 m) | |
| Date Sampled / Received: | 12/08/2013 | 002 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | | Test Method | Specification Minimum | Result | Specification Maximum |
|-------------------------------------|----------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: | Oven Dried low temp. | | | | |
| Moisture Content (%): ^{°C} | 105 to 110 | AS1289.2.1.1 | - | 40.8 | - |
| Liquid Limit (%) | | AS1289.3.1.2 | | 64 | |
| Plastic Limit (%) | | AS1289.3.2.1 | | 30 | |
| Plasticity Index (%) | | AS1289.3.3.1 | | 34 | |
| Linear Shrinkage (%) | | AS1289.3.4.1 | | 16.5 | |

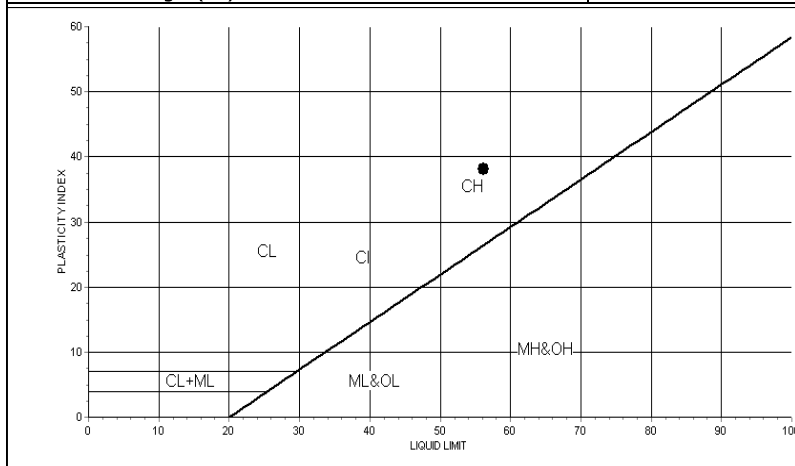

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 6 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303498 | BH2 (3.1-3.55 m) | |
| Date Sampled / Received: | 12/08/2013 | 003 SPT | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | | Test Method | Specification Minimum | Result | Specification Maximum |
|------------------------------------|----------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: | Oven Dried low temp. | | | | |
| Moisture Content (%) ^{°C} | 105 to 110 | AS1289.2.1.1 | - | 23.2 | - |
| Liquid Limit (%) | | AS1289.3.1.2 | | 56 | |
| Plastic Limit (%) | | AS1289.3.2.1 | | 18 | |
| Plasticity Index (%) | | AS1289.3.3.1 | | 38 | |
| Linear Shrinkage (%) | | AS1289.3.4.1 | | 17.0 | |



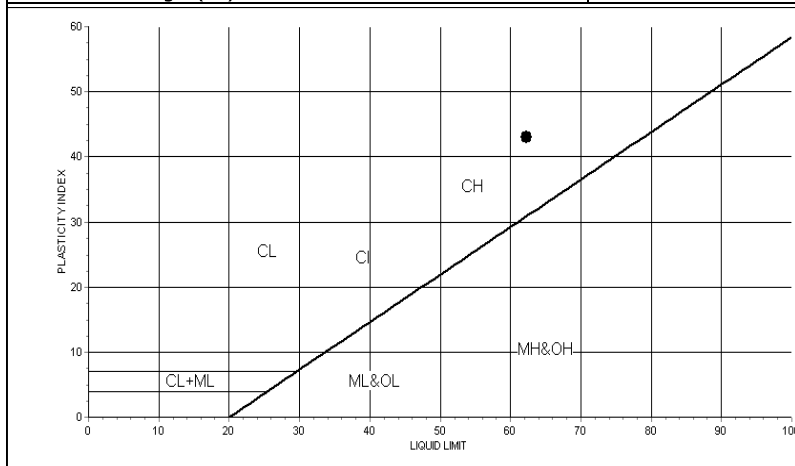
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 7 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303499 | BH3 (0.4-0.8 m) | |
| Date Sampled / Received: | 12/08/2013 | 001 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 36.1 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 62 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 19 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 43 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 17.5 | |

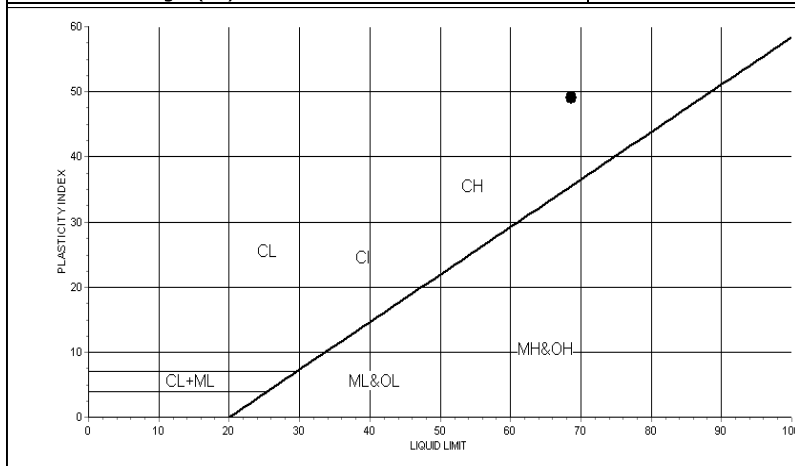

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 8 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303500 | BH3 (1.4-1.8 m) | |
| Date Sampled / Received: | 12/08/2013 | 002 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 33.3 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 69 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 20 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 49 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 19.5 | |

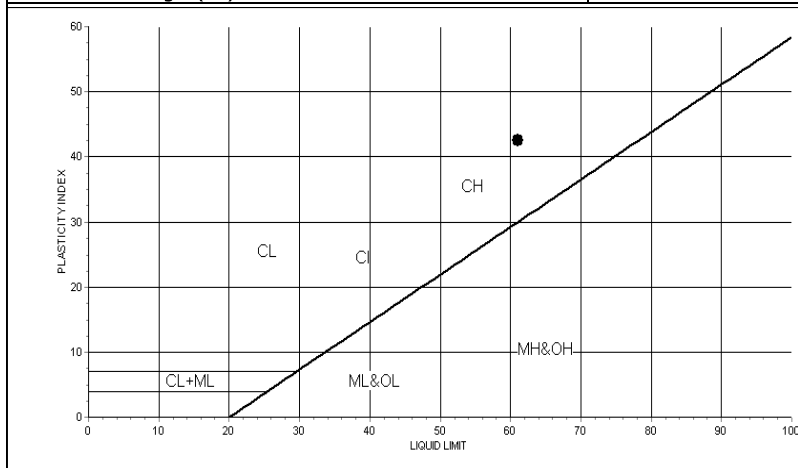

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 9 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303501 | BH3 (4.8-5.25 m) | |
| Date Sampled / Received: | 12/08/2013 | 006 SPT | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%): ^{°C} 105 to 110 | AS1289.2.1.1 | - | 29.8 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 61 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 18 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 43 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 18.5 | |



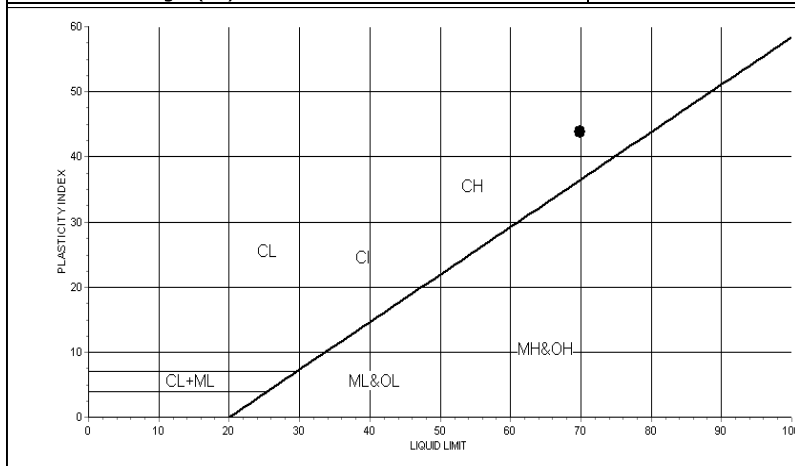
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | | |
| Job Number: | 137632122 | Report Date: | 23/09/2013 |
| Project: | Cairns Shipping Development | Order Number: | - |
| Location | Trinity Inlet , Cairns | Page 10 of 22 | |
| Lab No: | 13303502 | Sample Location | |
| Date Sampled / Received: | 12/08/2013 | BH3 (2.4-2.63 m) | |
| Date Tested: | 29/08/2013 | 003 U75 | |
| Sampled By: | Golder | Sampled 29/7/13 to 5/8/13 | |
| Sample Method: | - | | |
| Material Source: | Insitu | Spec Description: - | |
| For Use As: | Investigation | Lot Number: - | |
| Remarks: | This replaces the report dated 3/09/2013 | Spec Number: - | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 30.4 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 70 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 26 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 44 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 18.0 | |

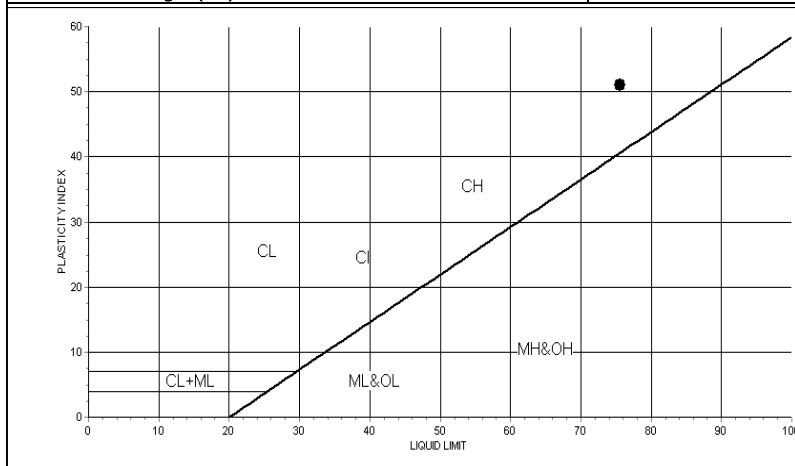

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 11 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303503 | BH4 (2.4-2.8 m) | |
| Date Sampled / Received: | 12/08/2013 | 001 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 68.2 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 76 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 25 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 51 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 17.5 | |

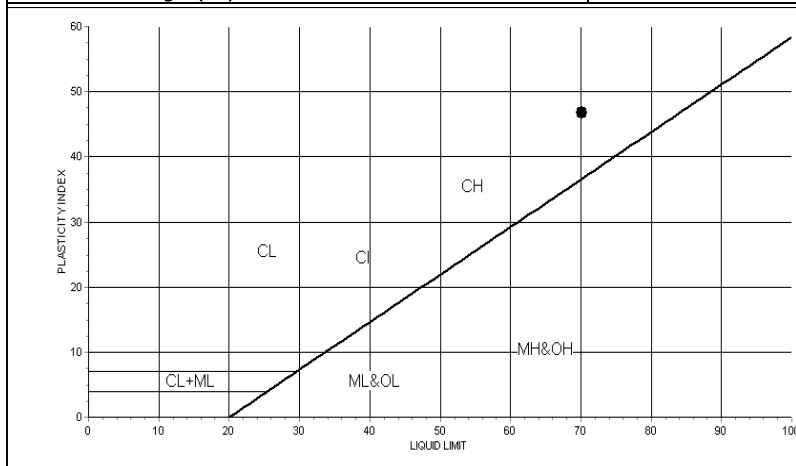

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 12 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303504 | BH4 (3.4-3.8 m) | |
| Date Sampled / Received: | 12/08/2013 | 002 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | | Test Method | Specification Minimum | Result | Specification Maximum |
|-------------------------|----------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: | Oven Dried low temp. | | | | |
| Moisture Content (%):°C | 105 to 110 | AS1289.2.1.1 | - | 71.5 | - |
| Liquid Limit (%) | | AS1289.3.1.2 | | 70 | |
| Plastic Limit (%) | | AS1289.3.2.1 | | 23 | |
| Plasticity Index (%) | | AS1289.3.3.1 | | 47 | |
| Linear Shrinkage (%) | | AS1289.3.4.1 | | 18.0 | |

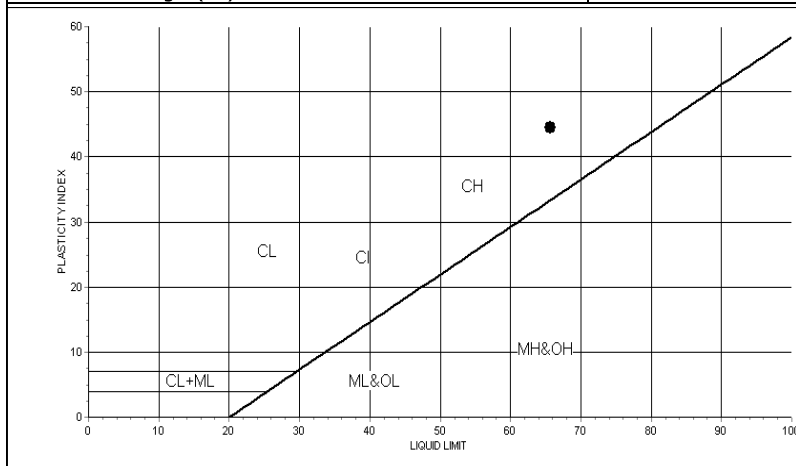

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 13 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303505 | BH4 (4.4-4.8 m) | |
| Date Sampled / Received: | 12/08/2013 | 003 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%): ^{°C} 105 to 110 | AS1289.2.1.1 | - | 44.0 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 66 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 21 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 45 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 18.0 | |



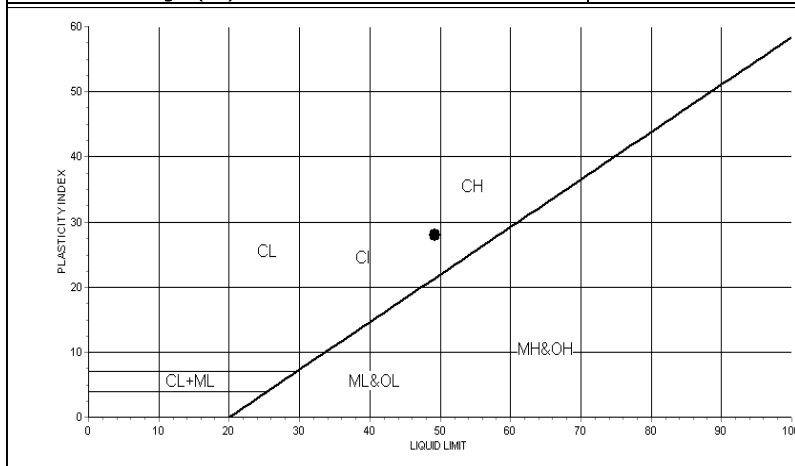
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 14 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303507 | BH5 (2.4-2.8 m) | |
| Date Sampled / Received: | 12/08/2013 | 001 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | | Test Method | Specification Minimum | Result | Specification Maximum |
|------------------------------------|----------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: | Oven Dried low temp. | | | | |
| Moisture Content (%) ^{°C} | 105 to 110 | AS1289.2.1.1 | - | 54.6 | - |
| Liquid Limit (%) | | AS1289.3.1.2 | | 49 | |
| Plastic Limit (%) | | AS1289.3.2.1 | | 21 | |
| Plasticity Index (%) | | AS1289.3.3.1 | | 28 | |
| Linear Shrinkage (%) | | AS1289.3.4.1 | | 12.0 | |



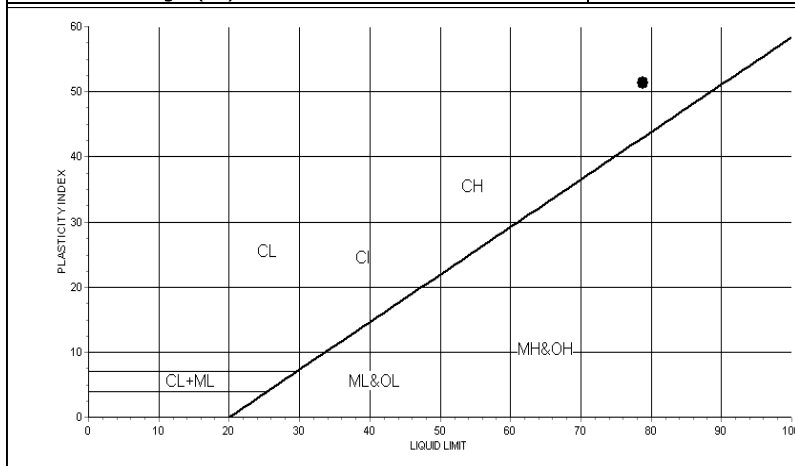
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 15 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303509 | BH5 (7.4-7.9 m) | |
| Date Sampled / Received: | 12/08/2013 | 006 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%): ^{°C} 105 to 110 | AS1289.2.1.1 | - | 69.4 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 79 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 28 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 51 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 18.5 | |

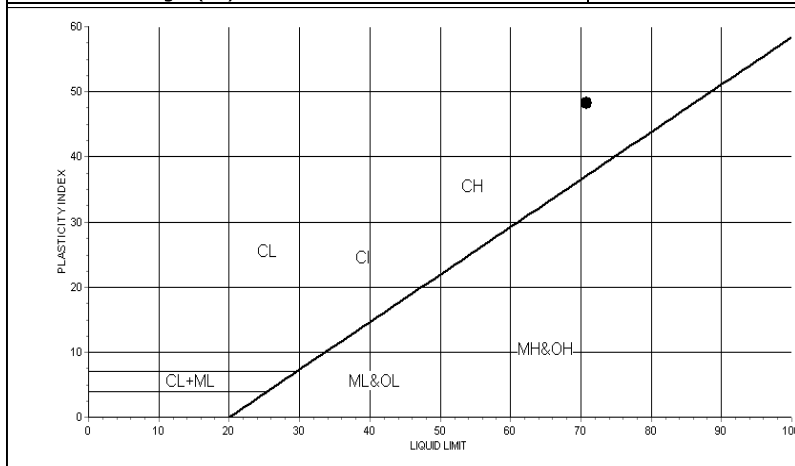


| | |
|-------------------------------------|-------------------------|
| Linear Shrinkage State after drying | No crumbling or curling |
|-------------------------------------|-------------------------|

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | | |
| Job Number: | 137632122 | Report Date: | 23/09/2013 |
| Project: | Cairns Shipping Development | Order Number: | - |
| Location | Trinity Inlet , Cairns | Page 16 of 22 | |
| Lab No: | 13303510 | Sample Location | |
| Date Sampled / Received: | 12/08/2013 | BH5 (10.4-10.8 m) | |
| Date Tested: | 29/08/2013 | 009 U75 | |
| Sampled By: | Golder | Sampled 29/7/13 to 5/8/13 | |
| Sample Method: | - | | |
| Material Source: | Insitu | Spec Description: - | |
| For Use As: | Investigation | Lot Number: - | |
| Remarks: | This replaces the report dated 3/09/2013 | Spec Number: - | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 58.0 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 71 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 23 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 48 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 16.5 | |

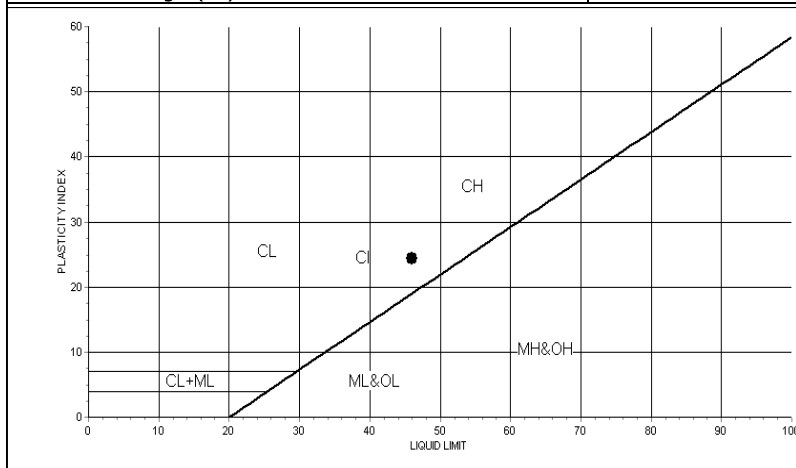

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 17 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303512 | BH6 (2.0-2.4 m) | |
| Date Sampled / Received: | 12/08/2013 | 003 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 49.6 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 46 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 22 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 24 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 9.5 | |



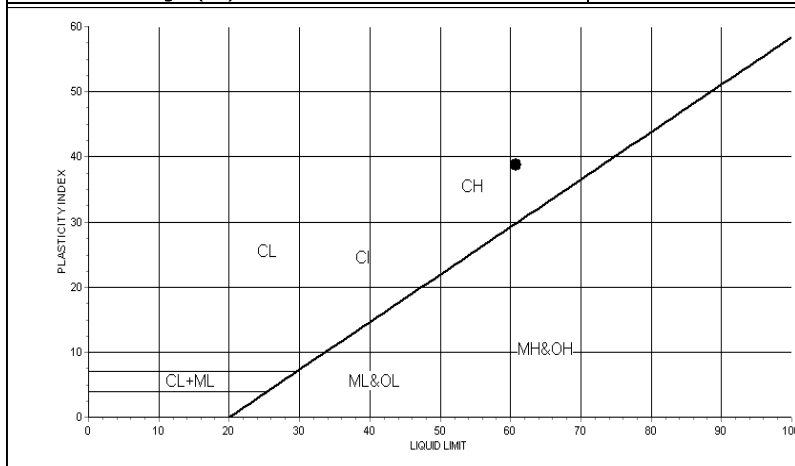
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | | |
| Job Number: | 137632122 | Report Date: | 23/09/2013 |
| Project: | Cairns Shipping Development | Order Number: | - |
| Location | Trinity Inlet , Cairns | Page 18 of 22 | |
| Lab No: | 13303513 | Sample Location | |
| Date Sampled / Received: | 12/08/2013 | BH6 (5.0-5.4 m) | |
| Date Tested: | 30/08/2013 | 006 U75 | |
| Sampled By: | Golder | Sampled 29/7/13 to 5/8/13 | |
| Sample Method: | - | | |
| Material Source: | Insitu | Spec Description: - | |
| For Use As: | Investigation | Lot Number: - | |
| Remarks: | This replaces the report dated 3/09/2013 | Spec Number: - | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 81.9 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 61 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 22 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 39 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 15.5 | |



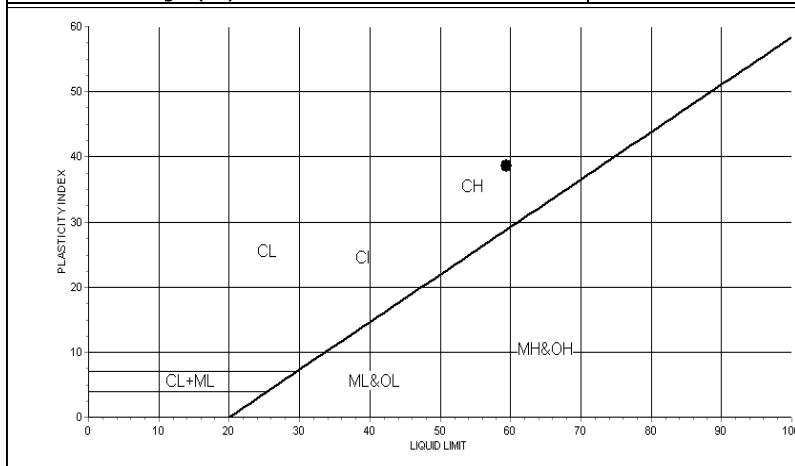
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 19 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303514 | BH6 (6.0-6.4 m) | |
| Date Sampled / Received: | 12/08/2013 | 007 U75 | |
| Date Tested: | 30/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 45.0 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 59 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 21 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 38 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 16.0 | |



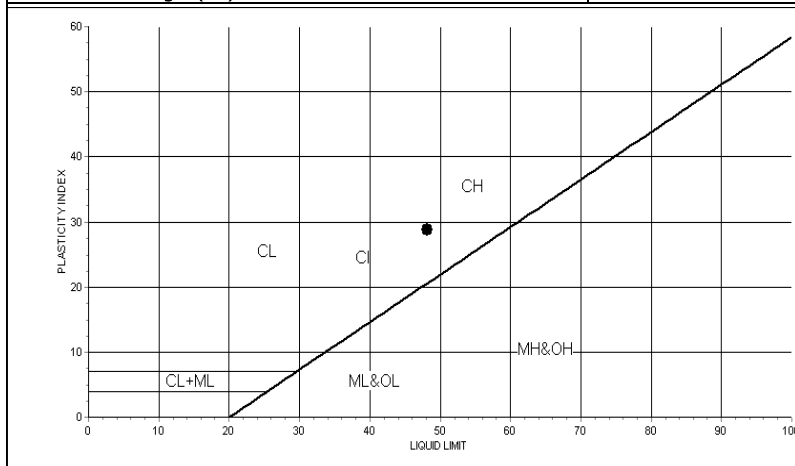
Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 20 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303516 | BH7 (3.2-3.6 m) | |
| Date Sampled / Received: | 12/08/2013 | 002 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | | Test Method | Specification Minimum | Result | Specification Maximum |
|-------------------------|----------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: | Oven Dried low temp. | | | | |
| Moisture Content (%):°C | 105 to 110 | AS1289.2.1.1 | - | 55.2 | - |
| Liquid Limit (%) | | AS1289.3.1.2 | | 48 | |
| Plastic Limit (%) | | AS1289.3.2.1 | | 19 | |
| Plasticity Index (%) | | AS1289.3.3.1 | | 29 | |
| Linear Shrinkage (%) | | AS1289.3.4.1 | | 12.5 | |

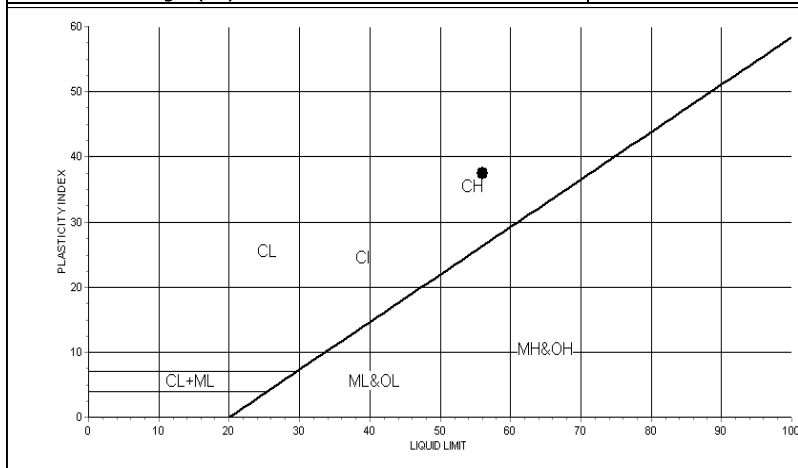

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 21 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303517 | BH7 (4.2-4.6 m) | |
| Date Sampled / Received: | 12/08/2013 | 003 U75 | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 43.3 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 56 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 19 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 37 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 15.5 | |

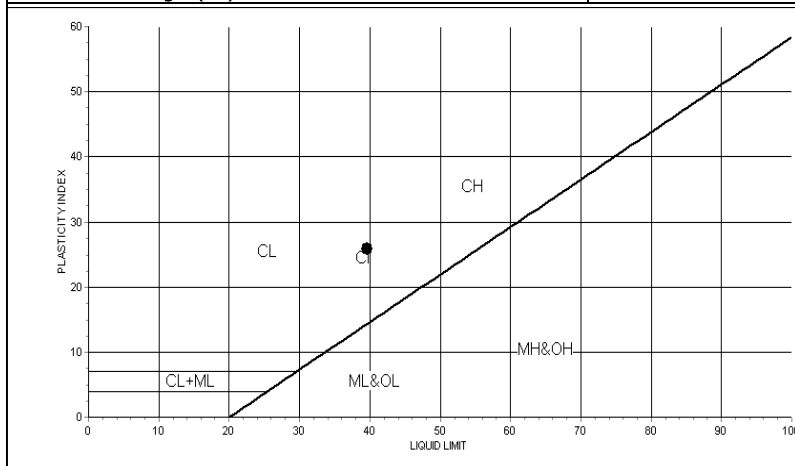

 Linear Shrinkage State
after drying

No crumbling or curling

Atterberg Limits Report

| | | | |
|--------------------------|--|---------------------------|---------------|
| Client: | Ports North | Report Number: | 137632122 - 2 |
| Client Address: | Cnr Grafton & Hartley Streets Cairns QLD | Report Date: | 23/09/2013 |
| Job Number: | 137632122 | Order Number: | - |
| Project: | Cairns Shipping Development | Page 22 of 22 | |
| Location | Trinity Inlet , Cairns | Sample Location | |
| Lab No: | 13303518 | BH7 (5.45-5.9 m) | |
| Date Sampled / Received: | 12/08/2013 | 004 SPT | |
| Date Tested: | 29/08/2013 | Sampled 29/7/13 to 5/8/13 | |
| Sampled By: | Golder | Spec Description: - | |
| Sample Method: | - | Lot Number: - | |
| Material Source: | Insitu | Spec Number: - | |
| For Use As: | Investigation | | |
| Remarks: | This replaces the report dated 3/09/2013 | | |

| Plasticity Tests | Test Method | Specification Minimum | Result | Specification Maximum |
|--------------------------------------|---------------------|-----------------------|-------------|-----------------------|
| Sample History: Oven Dried low temp. | | | | |
| Moisture Content (%):°C 105 to 110 | AS1289.2.1.1 | - | 22.8 | - |
| Liquid Limit (%) | AS1289.3.1.2 | | 40 | |
| Plastic Limit (%) | AS1289.3.2.1 | | 14 | |
| Plasticity Index (%) | AS1289.3.3.1 | | 26 | |
| Linear Shrinkage (%) | AS1289.3.4.1 | | 12.0 | |


 Linear Shrinkage State
after drying

No crumbling or curling