

**FIGURE 3. DETAILED PLOT OF NOVA SCOTIA DEPARTMENT OF NATURAL RESOURCES DIAMOND-DRILL HOLE WR 84-1, WOODBINE ROAD, SYDNEY BASIN, CAPE BRETON COUNTY, NOVA SCOTIA.**

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MINERAL RESOURCES DIVISION

**NOVA SCOTIA DEPARTMENT OF NATURAL RESOURCES**

HONOURABLE JOHN G. LEEFE, MINISTER

Halifax, Nova Scotia  
1993

DRILLHOLE: WR 84-1 BY: NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

LOCATION: WOODBINE ROAD, CAPE BRETON COUNTY (Figure 2) NTS: 11K/01

LATITUDE: 46 01 29 LONGITUDE: 60 13 57

ELEVATION: 187 FEET (57 m) INCLINATION: VERTICAL

TOTAL DEPTH: 619.2 m DATE DRILLED: March and April, 1984

DRILLED BY: NSDNR; J. Hayes and G. MacLeod

CASING: Surface hole drilled by J. W. Rudderham, TEMPORARY DIAMOND-DRILL CASING WAS REMOVED AND THE ENTIRE HOLE CEMENTED

CORE SIZE: HQ from 24.0-445.9 m, NQ from 445.9-619.2 m

DRILL FLUID: WATER AND ALCOMER POLYMER ADDITIVE

DEVIATION SURVEY: ONE TROPARI TEST AT 412 m. AZIMUTH = 252 DEGREES AND INCLINATION OF 88 DEGREES (2 DEGREES OFF VERTICAL)

0.0 to 24.0: OVERBURDEN: unconsolidated till, not recovered,  
NOTE: ALL LOG DEPTHS ARE IN METRES

24.0 to 25.4: SILTSTONE: siltstone and mudstone, red with grey-green mottle, poorly indurated with rubby core sections.
25.4 to 27.1: LIMESTONE: limestone to calcareous fine sandstone, medium red-brown, core moderately broken.
27.1 to 27.6: SILTSTONE: siltstone, mudstone, red and grey with minor shale, light grey-green.
27.6 to 28.1: LIMESTONE: medium red brown, very silty.
28.0 to 30.6: SILTSTONE: siltstone, medium to dark grey-green, with scattered fragmental limestone nodules, locally well laminated 80 degrees CA, grades up to dusky red siltstone.
30.6 to 32.1: LIMESTONE: limestone, medium to dark grey, with light grey nodular bedding, becomes very silty upwards, locally gritty with green-grey silty interbeds, 15 cm of black pyritic shale at base dips 80 degrees CA.
32.1 to 33.3: SILTSTONE: siltstone, light grey-green.
33.3 to 51.9: SILTSTONE: siltstone to fine sandstone, light red, shaly, variably calcareous, with several thin silty to nodular limestone interbeds at 42.25-42.55, 43.0-44.3, 44.5-45.1, and 46.2-46.6.
51.9 to 54.15: LIMESTONE: limestone, silty, light grey-brown, interlaminated micritic carbonate and grey to red silt, local wavy laminated, algal stromatolitic, grades up and down to silt, dips 85 degrees CA. TOP CAPE DRAUPIN FORMATION
54.15 to 65.4: SILTSTONE: siltstone to fine sandstone, light grey-green with local red mottle and banding, few interbeds of red siltstone, 156.35-57.3, 53.9-61.2, locally grey shaly siltstone with limestone nodules, locally laminated 80 degrees CA, scattered steep fractures.
65.4 to 66.4: LIMESTONE: limestone, similar to 51.9-54.15, light brown, shaly at top, minor breccia, superbly laminated, LLH form algal stromatolite.
66.4 to 86.4: SILTSTONE: siltstone and shale, grey, with local shear breccia and below 71.0m there are scattered 1 to 2cm gypsum veins, thin silty limestone to calcareous silt interbed at 69.4-70.2, and interbedded limestone to calcitic dolostone at 83.7-85.2, bedding dips 70 degrees CA.
86.4 to 87.1: LIMESTONE: limestone, LLH algal stromatolite
87.1 to 102.5: SHALE: shale and silty shale, greenish grey, laminated, locally shear brecciated and fractured, at 95.7m there is a 5cm thick pyritic sandstone interbed, the lower 2.3m is gradational with dolomitic gypsum.
102.5 to 103.2: GYPSUM: gypsum, locally selenitic, grey to white mottle, minor dolomite inclusions, satin spar vein hydration zone at base.
102.5 to 103.2: ANHYDRITE: anhydrite, light grey with green siltstone interbeds and satin spar veins and selenite gypsum porphyroblast hydration.
103.2 to 111.50: SHALE: interbedded shale, silt and gypsum, greenish grey, with numerous satin spar veins.
111.5 to 115.7: SILTSTONE: siltstone, greenish grey, with numerous satin spar veins.
115.7 to 116.7: ANHYDRITE: anhydrite with gypsum, selenitic (1cm to 0.5mm), grey to white mottle, hydration zone at top.
116.7 to 131.7: ANHYDRITE: anhydrite with minor gypsum, selenite (2 to 3mm), grey to white mottle, massive to nodular mosaic texture, increasing medium brown dolomite inclusions in the lower 3 m and gypsum hydration with abundant dolomite in the basal 1 m.
131.7 to 140.6: DOLOSTONE: dolostone, dolomitic limestone and minor limestone, light to medium brown, El-Dixon Point limestone characteristic dark grey wispy organic stringers and scattered calcite blebs, sparsely bioclastic, finely crystalline, with solitary rugose corals at 137.1m, slightly shaly in lower 3.5m, 138.9-140.6m shaly laminated to nodular bedding, basal 15cm is domal to planar algal stromatolite, nodular pyrite at sharp basal contact, bedding 80 degrees CA. TOP WOODBINE ROAD FORMATION
140.6 to 143.0: SILTSTONE: siltstone, grey, microbreccia bioturbated, minor gypsum nodules, bedding 80 degrees CA.
143.0 to 148.65: SILTSTONE: siltstone, red, grey and yellow brown mottled and interbedded, minor satin spar gypsum veins and nodules.
148.65 to 149.8: ANHYDRITE: anhydrite with gypsum hydration at top and base, grey to white mottle, thin 20cm section of pyritic brown dolostone at base, dips 80 degrees CA.
149.8 to 151.8: SILTSTONE: siltstone, medium to dark grey locally pale red, microbreccia, bioturbated, minor dolomitic bands, irregular laminations 80 degrees CA.
151.8 to 154.6: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic to nodular mosaic texture, with minor selenite (2 to 8mm) in upper 40cm with green-grey silt inclusions and gypsum hydration.
154.6 to 157.1: DOLOSTONE: dolostone, light to medium grey-brown, nodular to laminated, sparsely bioclastic, thin massive green silt interbed 155.5-155.62m, anhydrite interbed at 155.62-156.1m, basal 30cm is a fragmented domal algal stromatolite, bedding 80 degrees CA.
157.1 to 157.6: SILTSTONE: siltstone, light to medium grey, massive microbreccia.
157.6 to 161.9: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic to nodular mosaic texture, nodular in upper 100cm with green-grey silt inclusions.
161.9 to 164.7: DOLOSTONE: dolostone, medium brown, nodular to wispy black stringers, sparsely bioclastic, oolitic, massive and porous.
164.7 to 166.0: SILTSTONE: siltstone, light to medium grey, massive microbreccia.
166.0 to 174.7: SILTSTONE: siltstone, light to medium red, scattered satin spar veins minor green mottle.
174.7 to 177.9: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic to nodular mosaic texture, with minor selenite inclusions.
177.9 to 180.8: DOLOSTONE: dolostone, medium brown, domal stromatolite at top with abrupt contact to nodular anhydrite, sparsely bioclastic, oolitic, massive to fragmental and porous, basal algal stromatolite.
180.8 to 182.1: SILTSTONE: siltstone, light to medium grey, scattered anhydrite nodules and bands.
182.1 to 186.5: SILTSTONE: siltstone, light to medium red and grey, grey, interval 183.6-184.9 and 186.0-186.5 (dolomitic), laminated

locally at 80 degrees CA.
186.5 to 188.65: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic texture, scattered selenite porphyroblasts, nodular in lower 10cm with dolomite inclusions.
188.65 to 189.3: LIMESTONE: limestone, medium brown, laminated stromatolitic at top, massive mottled to oolitic and silty at base, grades up into anhydrite, bedding 80 degrees CA.
189.3 to 191.1: ANHYDRITE: anhydrite, grey to white mottle, nodular grading down to nodular mosaic, then massive mosaic texture, scattered selenite porphyroblasts, hydration in lower 30cm with sharp base.
191.1 to 194.1: DOLOSTONE: dolostone, (C3) medium brown, domal stromatolite at top (191.1-194.1) with abrupt contact to nodular anhydrite, massive to fragmental and conglomeratic (191.35-193.9), with a basal algal stromatolite, massive mottled, domal and fragmental, silty and oolitic (193.9-194.1), dips 80 degrees CA.
194.1 to 195.0: SILTSTONE: siltstone, light to medium grey, laminated locally at 80 degrees CA.
195.0 to 196.5: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic texture, scattered selenite porphyroblasts, top 50cm hydration.
196.5 to 197.35: DOLOSTONE: dolostone, (C2) medium brown, domal stromatolite and nodular anhydrite at top (196.5-197.2) with massive to laminated stromatolitic, domal to fragmental, then a basal algal stromatolite, dark grey shaly (197.2-197.35), dips 80 degrees CA.
197.35 to 199.65: SILTSTONE: siltstone, light to medium grey, microbreccia and dolomitic bands laminated at top 30cm at 80 degrees CA.
199.65 to 204.4: SILTSTONE: siltstone, light to medium red, minor green mottle, transitional at base to calcareous siltstone-silty limestone, laminated locally at 80 degrees CA.
204.4 to 206.3: LIMESTONE: limestone, (C1) light to medium grey-brown, silty nodular fragmental at top (204.4-204.5) with shaly nodular sparsely bioclastic banded (204.5-206.0) shaly silty dolomitic at base (206.0-206.3), dips 80 degrees CA.
206.3 to 207.1: SILTSTONE: siltstone, light to medium grey, microbreccia laminated at 80 degrees CA.
207.1 to 209.0: SILTSTONE: siltstone, light to medium red, minor green mottle.
209.0 to 210.0: GYPSUM: gypsum and shaly siltstone breccia, red and light grey-brown.
210.0 to 211.85: DOLOSTONE: calcitic dolostone, light to medium grey-brown, domal algal stromatolite at top, oolitic oolitic, massive to shaly in lower parts with nodular convoluted section at base, dips 80 degrees CA.
211.85 to 213.7: SILTSTONE: siltstone, light to medium grey, microbreccia laminated at 80 degrees CA.
213.7 to 228.0: LIMESTONE: limestone to calcitic dolostone (Crawley Creek Limestone) light to medium grey-brown, dominated by nodular bedding and banding, abundant bioclastic debris including crinoids and bryozoa, Dibucophylus? solitary corals at 219.3-219.8, nodular bedding dominates below 221.4m, silty and fragmental in lower 1 m, convoluted near base, dips 80 degrees CA.
228.0 to 230.3: SILTSTONE: siltstone to fine sand, lit to med grey.
230.3 to 233.0: SILTSTONE: siltstone to fine sandstone, light to medium red and grey, laminated 80 degrees CA. TOP MEADOWS ROAD FM
233.0 to 235.0: SILTSTONE: siltstone to fine sandstone, light to medium grey, dark shaly bands, minor dolomitic bands.
235.0 to 236.2: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic texture, scattered selenite, minor hydration at contacts.
236.2 to 239.7: DOLOSTONE: dolostone, light brown, fragmental to convoluted at top then massive, local shaly band, below 238.3 is medium to dark grey limestone with shaly interbeds, nodular to oolitic texture, shaly bioclastic, minor pyrite, transitional down to silty dolostone, dips 80 degrees CA.
239.7 to 242.1: SILTSTONE: siltstone to fine sandstone, light to medium grey, minor anhydrite bands at 80 degrees CA.
242.1 to 248.9: SILTSTONE: siltstone and fine sandstone, light to medium red, minor green mottle, basal 20cm grey green siltstone.
248.9 to 252.55: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic, scattered selenite porphyroblasts, no hydration, minor dolomite in middle of section.
252.55 to 256.4: SILTSTONE: siltstone and fine sandstone, light to medium red, minor green mottle, basal 250cm grey green sandstone, anhydritic silt at 254.5-254.9, shaly at top and basal contacts.
256.4 to 256.3: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic, no hydration, minor dolomite in section 251.1-251.4
256.3 to 257.4: SANDSTONE: sandstone, medium to coarse-grained, light to medium grey, with dark grey siltstone, minor conglomerate at base, sharp top and basal contacts.
257.4 to 270.0: SANDSTONE: sandstone and siltstone, light to medium red, minor green mottle, scattered anhydrite nodules.
270.0 to 271.8: SILTSTONE: siltstone, light to medium red, minor green mottle, scattered white limestone nodules, banding 80 degrees CA.
271.8 to 272.7: LIMESTONE: limestone, light grey-brown to white, dolomitic near base, dips 80 degrees CA.
272.7 to 277.0: ANHYDRITE: anhydrite, grey to white mottle, nodular to massive mosaic, sheared near top with red siltstone, grey siltstone interstitial near base.
277.0 to 281.0: SILTSTONE: siltstone, light to medium red, gritty to conglomeratic, scattered white limestone nodules, green mottle.
281.0 to 282.0: LIMESTONE: limestone, light grey-brown to white, nodular and silty near base, dips 80 degrees CA.
282.0 to 284.7: SILTSTONE: siltstone, light to medium red, gritty to conglomeratic, with scattered white silty limestone nodules.
284.7 to 288.10: LIMESTONE: limestone, light brown to white, nodular and fragmental at top, silty and sparsely bioclastic in lower 20cm, dips 80 degrees CA.
288.1 to 292.9: ANHYDRITE: anhydrite, grey to white mottle, nodular to massive mosaic, red and grey siltstone and sandstone at 289.5-290.0 with anhydrite nodules, base is nodular gradation.
292.9 to 299.0: DOLOSTONE: dolostone, medium to dark grey with light grey interbeds, micritic, shaly nodular and fragmental, medium to dark grey oncoidal and mottled algal dolostone, sparsely bioclastic in lower part, dips 80 degrees CA.
299.0 to 303.9: ANHYDRITE: anhydrite, grey, massive mosaic.
303.9 to 307.3: SILTSTONE: siltstone and fine sandstone, light to medium red, minor green top and base, scattered anhydrite nodules.
307.3 to 314.8: ANHYDRITE: anhydrite, grey to white mottle, massive mosaic, minor grey silty shale at base of section.
314.8 to 320.9: SANDSTONE: sandstone and silty shale, light to medium grey-green, minor red mottle, rare anhydrite nodules.
320.9 to 331.0: ANHYDRITE: anhydrite, grey to white mottle, nodular to massive mosaic with grey silt at top and dolostone near base.
331.0 to 332.1: DOLOSTONE: dolostone, medium yellow brown, irregular lamination, fragmental with dark grey shaly nodular bands, nodular anhydrite at base, dips 80 degrees CA.
332.1 to 333.0: ANHYDRITE: anhydrite, grey to white mottle, nodular to massive mosaic, dolostone near top and base.
333.0 to 336.5: SANDSTONE: sandstone and conglomerate, light to medium red, anhydrite nodules and fragments, gritty grey sand at top and red at base.
336.5 to 337.0: ANHYDRITE: anhydrite, grey to white mottled red with red silt and sand, shear fractures.
337.0 to 345.9: SILTSTONE: siltstone and fine sandstone, light to medium red, scattered anhydrite nodules and veins, local shears.
345.9 to 355.6: ANHYDRITE: anhydrite, grey to white mottle, nodular to massive mosaic, interstitial green silt, pink colour at base.
355.6 to 356.3: LIMESTONE: limestone, light brown with 27% CELESTINE, reddish hematite stain, fragmental at base, dips 80 degrees CA.
356.3 to 362.35: LIMESTONE: limestone (B2), medium to dark grey with light grey interbeds, micritic, shaly nodular and fragmental, medium to dark grey oncoidal and mottled algal dolostone, sparsely bioclastic, mottled algal at base, dips 80 degrees CA.
362.35 to 365.2: CONGLOMERATE: conglomerate and sandstone, light to medium green.
365.2 to 370.80: SILTSTONE: siltstone and fine sandstone, light to medium red with minor grey-green mottle and interbeds, 40cm calcareous grey shale at base.
370.8 to 378.8: LIMESTONE: limestone (HYDRO), medium grey to dark grey brown, light grey interbeds, micritic, shaly nodular and fragmental, medium to dark grey oncoidal, dolomitic at top and base, sparsely bioclastic, transitional to grey shaly silt at base, dips 80 degrees CA.
378.8 to 381.4: SILTSTONE: siltstone and shale, light to medium grey, slightly calcareous.
381.4 to 383.5: SANDSTONE: sandstone and fine conglomerate, light to medium red, cross-bedded.
383.5 to 385.6: SILTSTONE: siltstone and shale, light to medium grey, gritty at base.
385.6 to 393.1: SANDSTONE: sandstone, siltstone and fine grit, light to medium red, cross-bedded, scattered anhydrite fragments.

393.1 to 394.0: SHALE: shale and siltstone, light to medium grey, slightly calcareous, convoluted and sheared.
394.0 to 399.9: SILTSTONE: siltstone and shale, light to medium red, scattered white limestone nodules and thin interbeds.
399.9 to 400.45: LIMESTONE: limestone, white with wispy red stringers, massive and crystalline.
400.45 to 401.7: SILTSTONE: siltstone and shale, light to medium red, scattered white limestone nodules.
401.7 to 402.4: LIMESTONE: limestone, white with nodular texture at contacts, medium grey brown mottled algal limestone in middle.
402.4 to 403.7: SILTSTONE: siltstone and shale, light to medium red, scattered white limestone nodules. TOP STONEY RIVER FM
403.7 to 404.0: LIMESTONE: limestone conglomerate, white, well rounded.
404.0 to 406.9: SILTSTONE: siltstone and shale, light to medium red, scattered white limestone nodules.
406.9 to 408.6: LIMESTONE: limestone, white nodules in red mudstone, popcorn texture, gradational contacts.
408.6 to 414.1: SANDSTONE: sandstone, siltstone, grit and conglomerate, light to medium red, with scattered limestone nodules and fragments.
414.1 to 527.8: CONGLOMERATE: conglomerate and sandstone, medium red, with a few thin 10 to 50 cm red silty sandstone interbeds, clasts are poorly sorted, subangular to subrounded, metavolcanics, vein quartz and minor granitoids, cycles appear to coarsen upwards with sharp bases and also some sections fine upwards, noticable silty taste on core 425-426, maximum clast sizes: 4cm at 415, 8cm at 425, 3cm at 430, 8cm at 435, 10cm at 440, 7cm at 465, 8cm at 470, 4cm at 480, 3cm at 485, 6cm at 510, 4cm at 515, scattered limestone nodules and fragments.
527.8 to 530.8: SANDSTONE: sandstone, siltstone and fine grit, light to medium red, minor green mottle, cross-bedded, scattered calcite veins, dips 80 degrees CA.
530.8 to 532.3: SANDSTONE: sandstone with shale interbeds, medium to dark grey pyritic, sheared, few coaly partings, fining upwards, cross-bedded, dips 75-80 degrees CA.
532.3 to 535.6: SILTSTONE: siltstone and shale, light to medium red and grey green mottled, minor grey sandstone at base.
535.6 to 536.0: SHALE: shale, light to medium grey.
536.0 to 550.75: SANDSTONE: sandstone with shale interbeds, medium to dark grey, pyritic, sheared, few coaly partings, fining upwards, cross-bedded, numerous small fracture faults, dips 80 to 80 degrees CA. TOP GRANITIC FORMATION
550.75 to 560.0: SILTSTONE: siltstone and fine sandstone, light to medium red and minor grey green mottle, several steep fractures with vein calcite.
560.0 to 588.2: SANDSTONE: sandstone, siltstone and fine gritty conglomerate, light to medium red, minor green mottle, cross-bedded, fining upward, scattered fractures, dips 80 degrees CA.
588.2 to 619.2: CONGLOMERATE: conglomerate, medium red, with a few thin red sandstone interbeds, clasts are poorly sorted, subangular to subrounded, metavolcanics, vein quartz and minor granitoids, cycles appear to coarsen upwards with sharp bases and also some sections fine upwards, maximum clast size is 20 cm.
TOTAL DEPTH: 619.2 m