

**ANCHOR LEVELS**

BEAM	SEAWARD LEFT	SEAWARD RIGHT	LANDWARD LEFT	LANDWARD RIGHT
12	2,838	2,850	3,143	3,155
13	2,717	2,828	3,122	3,133
17	2,730	2,741	3,035	3,046
20	2,688	2,683	2,993	2,988

**BENCH MARK**

CODE	Y	X	ELEVATION
P2J	-2 250,151	3 306 618,944	2,996
P2I	-2 133,465	3 306 647,623	2,977
P2G	-1 942,630	3 306 690,898	2,993
P2H	-2 036,327	3 306 669,638	2,964
P2F	-1 845,059	3 306 713,025	2,955
P2E	-1 743,051	3 306 736,132	2,890
P2D	-1 647,457	3 306 757,820	2,803
P2C	-1 553,068	3 306 779,268	2,786
P2B	-1 455,483	3 306 801,369	2,812
P2A	-1 363,655	3 306 822,233	2,915

**WGS 84 : CO-ORDINATES**

POINT	Y	X
1	-2 254,559	3 306 598,777
2	-1 662,648	3 306 732,859
3	-1 554,966	3 306 757,252

**AS BUILT**

- NOTES**
- BENCH MARKS ARE SUMMARISED IN TABLE ABOVE
  - "BEST-FIT" TO BE ESTABLISHED ON SITE, CHECKED WITH THE SUPERVISOR, AND USED AS THE BASE LINE FOR SETTING OUT SEASIDE AND LANDSIDE RAILS
  - LEVELS TO BE CONSTRUCTED IN ACCORDANCE THIS DRAWING

**NOTES**

- DO NOT SCALE DRAWING - ONLY DIMENSIONS SHOWN TO BE USED.
- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND LEVELS ON THE SITE AND NOTIFY THE NEC SUPERVISOR OF ANY VARIATIONS BEFORE CONSTRUCTION.

**REVISIONS**

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
2	AS-BUILT	LAV	J.G	HOW	2015-04-23
4	BEAMS 18-20 ADDED	LAV	J.G	HOW	2012-10-22
3	ANCHOR LEVELS DEFINED	LAV	J.G	HOW	2012-08-08
2	BOLLARD NUMBERS REVISED	LAV	J.G	HOW	2012-07-05
1	CO-ORDINATES LIST UPDATED	LAV	J.G	HOW	2012-02-25
0	ISSUED FOR CONSTRUCTION	LAV	J.G	HOW	2012-05-30
A	ISSUED FOR TENDER	LAV	J.G	HOW	2012-02-20

**CONTRACTOR / CONSULTANT**

**RCE CONSULTANTS**  
Railway & Civil Engineering

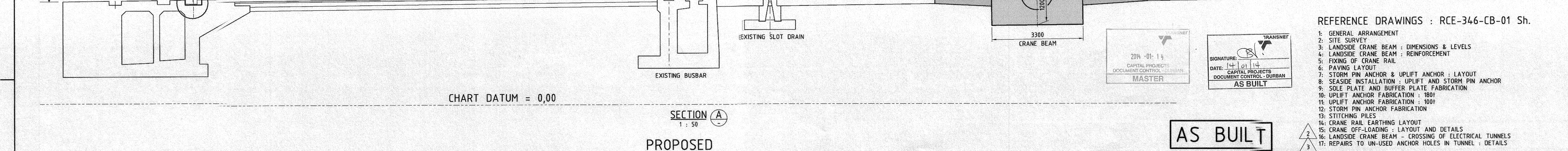
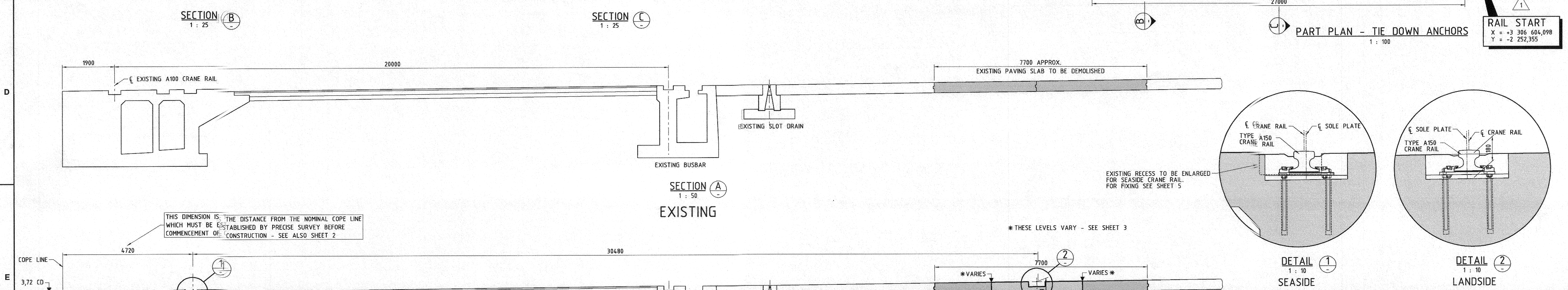
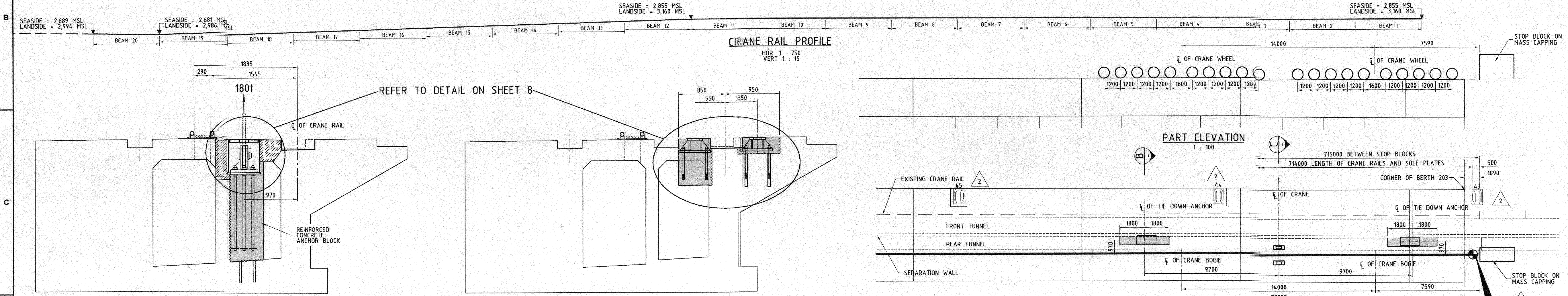
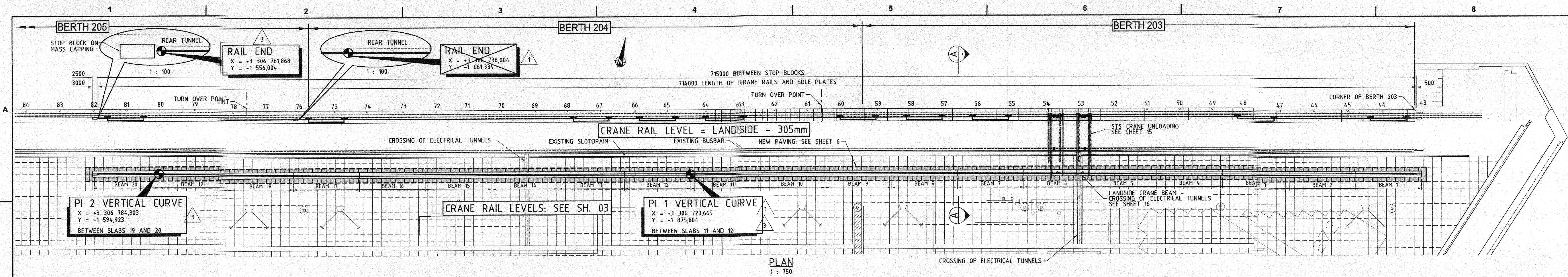
**CONTRACTOR / CONSULTANT**

**TRANSNET CAPITAL PROJECTS**

**OPERATING DIVISIONS**

TITLE	NAME	SIGN	DATE
PROJECT MANAGER			
DESIGNER			
CHECKED			
DRAWN			
CHECKED			

**PORT OF DURBAN**  
INFRASTRUCTURE FOR NEW SHIP TO SHORE  
CRANES AT NORTH QUAY,  
SETTING OUT : SITE SURVEY



**NOTES**

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**REFERENCE DRAWINGS**

DRAWING NO.	REFERENCE
1	
2	
3	
4	
5	
6	
7	

**CONSULTANT:**

**RCE CONSULTANTS**  
Railway & Civil Engineering

Building 6  
Riverside Engineering Park  
Riverside Drive  
Sydney, NSW  
1585

Phone: +61 2 955 4800  
Fax: +61 2 955 4800  
Email: info@rce.com.au  
www.rce.com.au

**DRAWING NO:**  
RCE-346-CB-01 Sh. 01 Rev. Z

**CONTRACTOR / CONSULTANT**

TITLE	NAME	SIGN	DATE
DRAWN	JVG		12 01 16
CHECKED	JVG		12 05 30
DESIGNED	HOW		
CHECKED	JVG		

**OPERATING DIVISIONS**

TITLE	NAME	SIGN	DATE
PRE-ENG. / PR/TECH./PR. ARCH			
NAME	H G WET		
SIGNATURE			12 05 30
SCALE:	1:750		

**REVISIONS**

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
2	AS BUILT	LAV	JLG	HOW	2013-04-23
3	BEAMS 18 TO 20 ADDED	LAV	JLG	HOW	2012-10-22
12	BOLLARD NUMBERS REVISED. SHEET 16 ADDED	LAV	JLG	HOW	2012-07-05
1	SEAWARD RAIL CO-ORDINATES ADDED	LAV	JLG	HOW	2012-07-05
8	ISSUED FOR CONSTRUCTION	LAV	JLG	HOW	2012-06-30
4	ISSUED FOR TENDER	LAV	JLG	HOW	2012-02-29

**AS BUILT**

**REFERENCE DRAWINGS : RCE-346-CB-01 Sh.**

- GENERAL ARRANGEMENT
- SITE SURVEY
- LANDSIDE CRANE BEAM : DIMENSIONS & LEVELS
- LANDSIDE CRANE BEAM : REINFORCEMENT
- FIXING OF CRANE RAIL
- PAVING LAYOUT
- STORM PIN ANCHOR & UPLIFT ANCHOR : LAYOUT
- SEASIDE INSTALLATION : UPLIFT AND STORM PIN ANCHOR
- SOLE PLATE AND BUFFER PLATE FABRICATION
- UPLIFT ANCHOR FABRICATION : 1801
- UPLIFT ANCHOR FABRICATION : 1001
- STORM PIN ANCHOR FABRICATION
- STITCHING PILES
- CRANE RAIL EARTHING LAYOUT
- CRANE OFF-LOADING : LAYOUT AND DETAILS
- LANDSIDE CRANE BEAM - CROSSING OF ELECTRICAL TUNNELS
- REPAIRS TO UN-USED ANCHOR HOLES IN TUNNEL : DETAILS

**TRANSNET CAPITAL PROJECTS**

TITLE	NAME	SIGN	DATE
DRAWN	JVG		12 01 16
CHECKED	JVG		12 05 30
DESIGNED	HOW		
CHECKED	JVG		

**PRE-ENG. / PR/TECH./PR. ARCH**

TITLE	NAME	SIGN	DATE
NAME	H G WET		
SIGNATURE			12 05 30
SCALE:	1:750		

**Transnet Capital Projects**  
TRANSNET CAPITAL PROJECTS  
237 MANHATTAN GARDENS ROAD  
DURBAN  
TEL: 031 361 1000  
P.O. BOX 1074, DURBAN  
0688 770015

**PORT OF DURBAN**  
INFRASTRUCTURE FOR NEW SHIP TO SHORE  
CRANES AT NORTH QUAY,  
GENERAL ARRANGEMENT

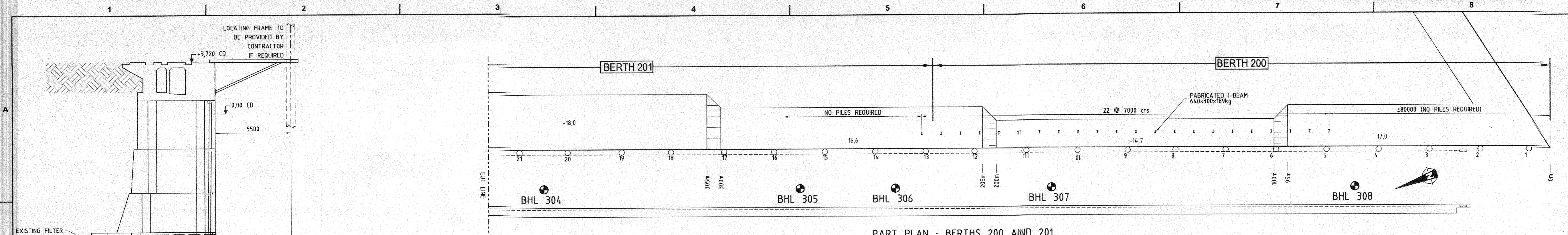
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**ISSUE** 01  
**SCALE** 1:750

**AS BUILT**

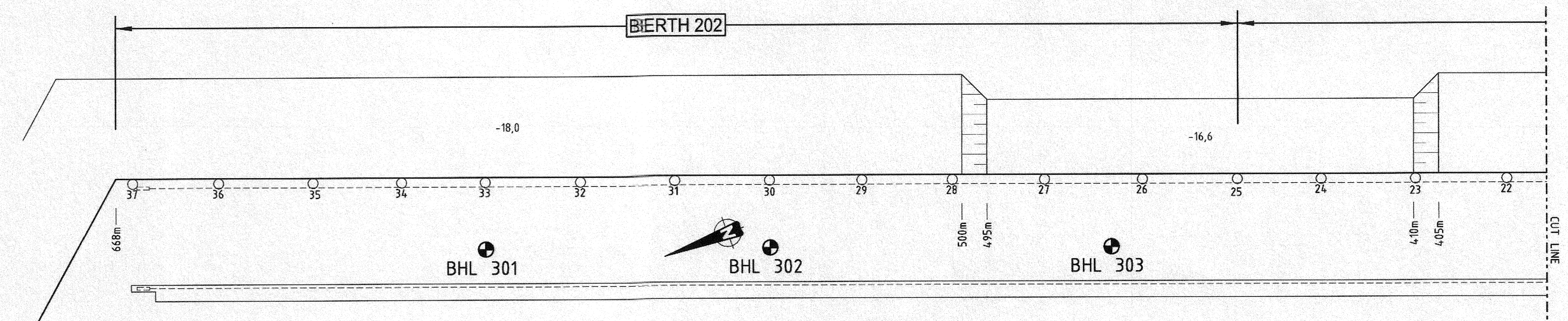
**TRANSNET**

**PORT OF DURBAN**  
INFRASTRUCTURE FOR NEW SHIP TO SHORE  
CRANES AT NORTH QUAY,  
GENERAL ARRANGEMENT

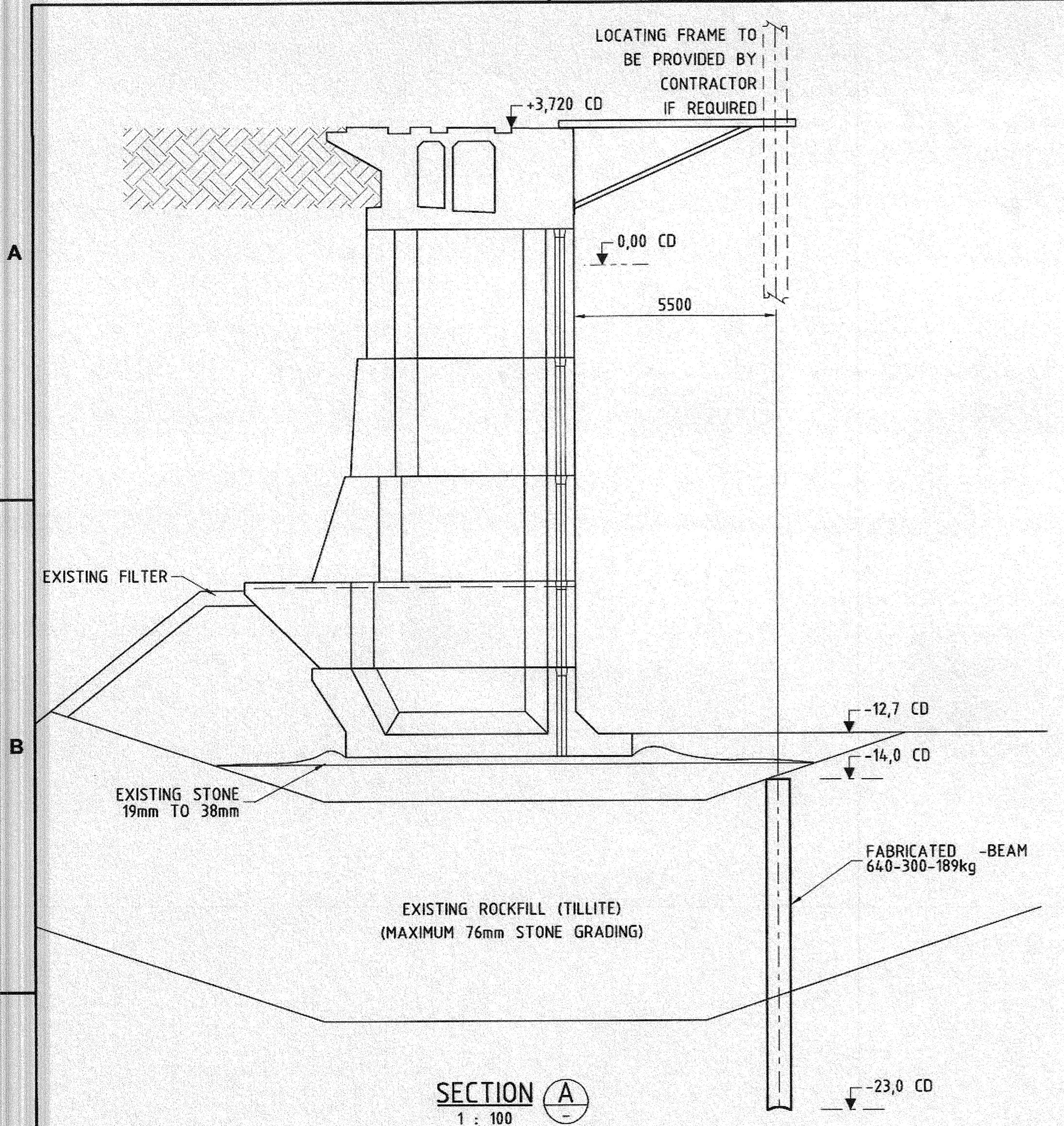
**PROJECT NUMBER** 2223097  
**ISSUE** 01  
**SCALE** 1:750



PART PLAN : BERTHS 200 AND 201  
1 : 500

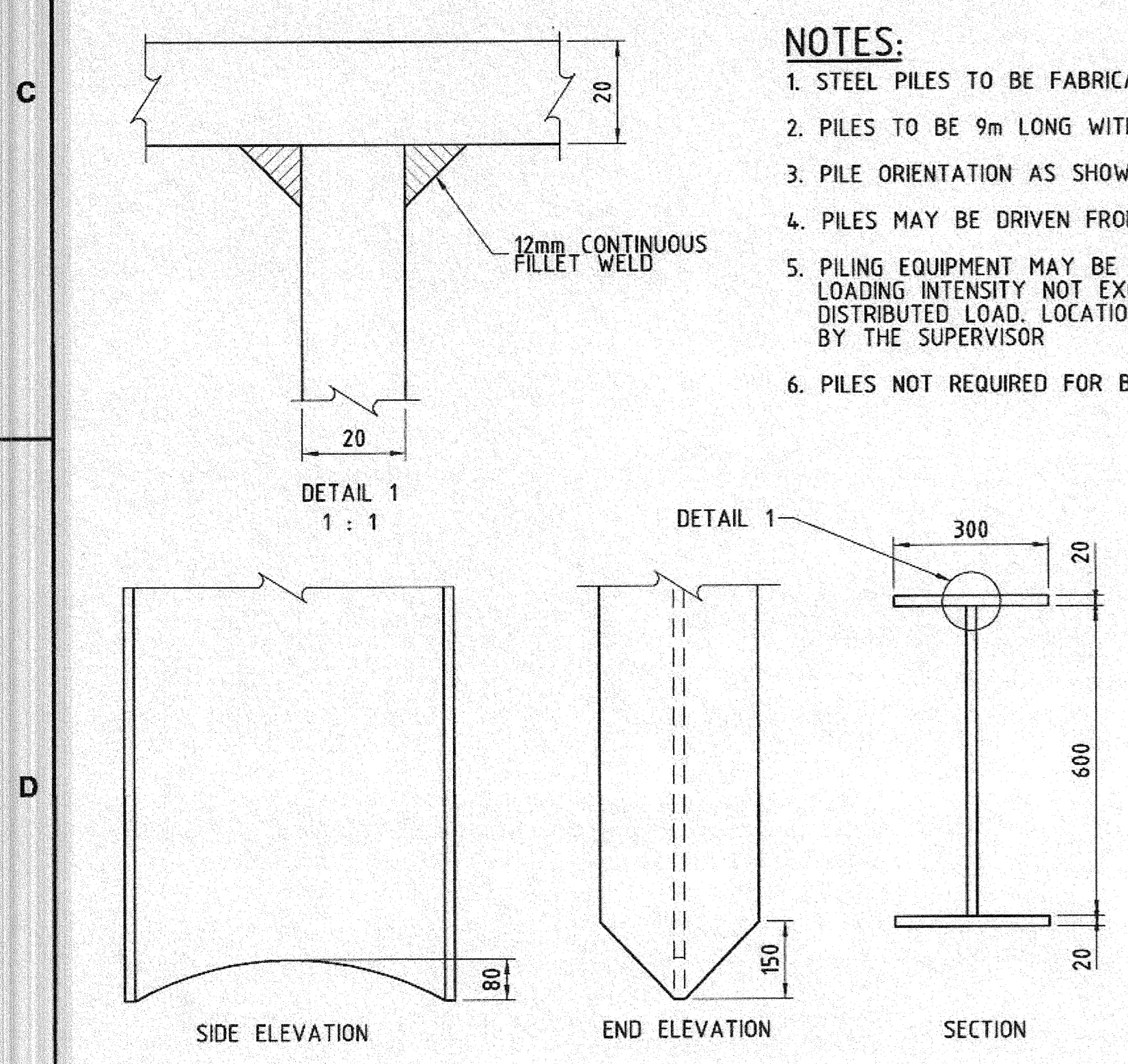


PART PLAN : BERTH 202  
1 : 500

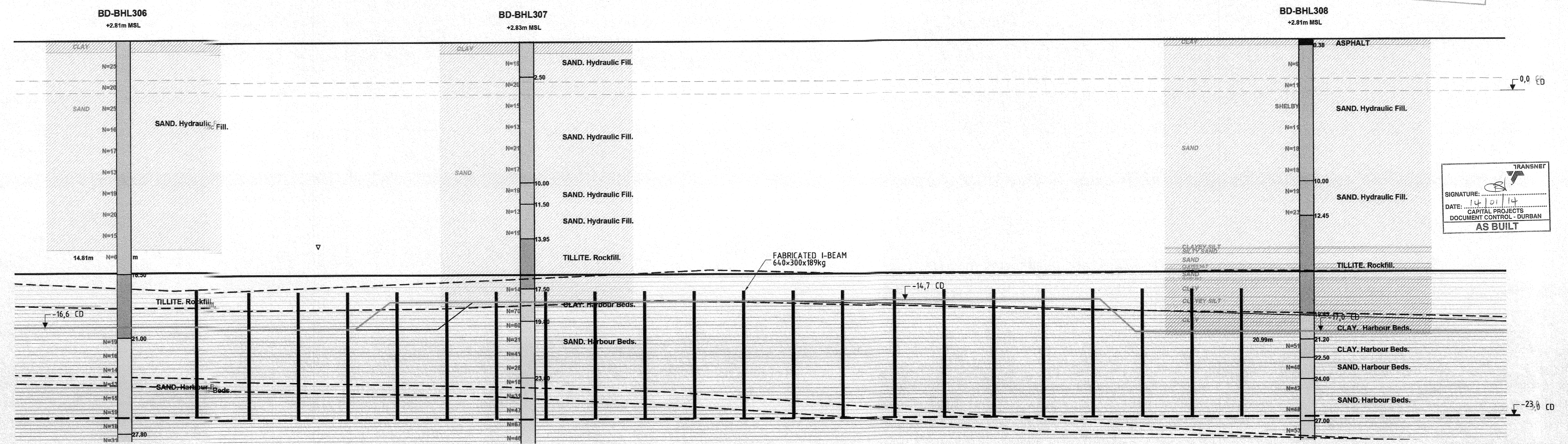


SECTION A  
1 : 100

- NOTES:**
1. STEEL PILES TO BE FABRICATED USING GRADE S355JR PLATE
  2. PILES TO BE 9m LONG WITH PILE TOPS DRIVEN TO -14.0m ±0.2m CHART DATUM (CD)
  3. PILE ORIENTATION AS SHOWN. (WEBS AT RIGHT ANGLE TO QUAY WALL)
  4. PILES MAY BE DRIVEN FROM LAND
  5. PILING EQUIPMENT MAY BE OPERATED ON THE QUAY WALL SUBJECT TO THE LOADING INTENSITY NOT EXCEEDING THAT EQUIVALENT TO A 300kPa UNIFORMLY DISTRIBUTED LOAD. LOCATION OF CONCENTRATED POINT LOADS TO BE APPROVED BY THE SUPERVISOR
  6. PILES NOT REQUIRED FOR BERTHS 201 AND 202



PILE DETAIL  
1 : 10



GEOLOGICAL CROSS SECTION (LANDWARD)  
HOR 1 : 250  
VERT 1 : 125

20th-01-14  
CAPITAL PROJECTS  
DOCUMENT CONTROL  
MASTER

SIGNATURE: [Signature]  
DATE: 14/01/14  
CAPITAL PROJECTS  
DOCUMENT CONTROL - DURBAN  
AS BUILT

AS BUILT

**NOTES**

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DRAWING NO.	REFERENCE
1	REFERENCE DRAWINGS
2	
3	
4	
5	
6	
7	

**CONSULTANT:**  
**RCE CONSULTANTS**  
Railway & Civil Engineering

Address: 1st Floor, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

**CONTRACTOR / CONSULTANT**

TITLE	NAME	SIGN	DATE
ISSUED FOR CONSTRUCTION	LAV		2013-04-23
DESIGNED	LAV		2012-11-13
CHECKED			
OPERATING DIVISIONS			
TITLE	NAME	SIGN	DATE
PR. ENG. / PR. TECH. / PR. ARCH			
NAME	H. S. VET		
SIGNATURE	[Signature]		
REG. NUMBER	742570		
SCALE:	1 : 500		

**REVISIONS**

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
Z	AS-BUILT	LAV			2013-04-23
D	ISSUED FOR CONSTRUCTION	LAV			2012-11-13

**DRAWING NO:** RCE-346A Sh. 03 Rev. Z

**CONTRACTOR / CONSULTANT**

TITLE	NAME	SIGN	DATE
ISSUED FOR CONSTRUCTION	LAV		2013-04-23
DESIGNED	LAV		2012-11-13
CHECKED			
OPERATING DIVISIONS			
TITLE	NAME	SIGN	DATE
PR. ENG. / PR. TECH. / PR. ARCH			
NAME	H. S. VET		
SIGNATURE	[Signature]		
REG. NUMBER	742570		
SCALE:	1 : 500		

**REVISIONS**

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
Z	AS-BUILT	LAV			2013-04-23
D	ISSUED FOR CONSTRUCTION	LAV			2012-11-13

**DRAWING NO:** RCE-346A Sh. 03 Rev. Z

**Transnet Capital Projects**

257 MAHATMA GANDHI ROAD  
DURBAN TEL: 031 261 9096  
P.O. BOX 1073, DURBAN FAX: 031 261 7315

**PORT OF DURBAN**

**PIER 2 : EAST ARM : BERTHS 200 TO 202**

**ANCHOR DETAILS : LIEBHERR CRANE STITCHING PILES**

**AS BUILT**

PROJECT NUMBER: 001  
JOB: 001  
TYPE: 013  
DRAWING NO: 013  
SHEET: 1  
REV: 1