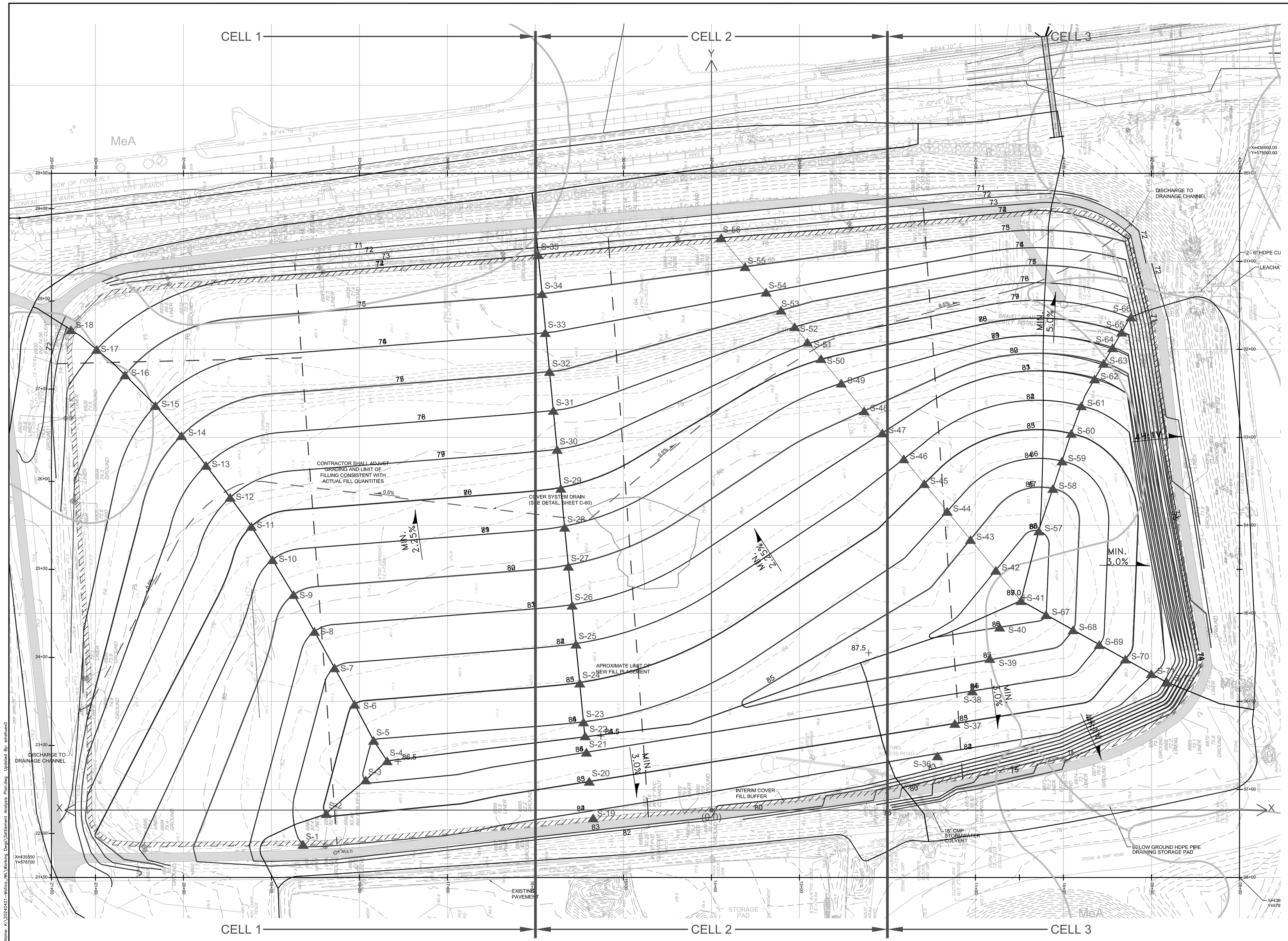


## SETTLEMENT ANALYSIS RESULTS

| NO. | SETTLEMENT TOTAL | SETTLEMENT INITIAL | SETTLEMENT RESIDUAL | NO. | SETTLEMENT TOTAL | SETTLEMENT INITIAL | SETTLEMENT RESIDUAL |
|---|---|---|---|---|---|---|---|
| 1 | 2.764 | 1.323 | 1.441 | 41 | 9.388 | 6.188 | 3.200 |
| 2 | 6.141 | 3.354 | 2.787 | 42 | 9.304 | 6.119 | 3.185 |
| 3 | 9.794 | 5.131 | 4.663 | 43 | 9.081 | 6.021 | 3.060 |
| 4 | 10.515 | 5.285 | 5.230 | 44 | 8.810 | 5.937 | 2.873 |
| 5 | 10.835 | 5.177 | 5.658 | 45 | 8.435 | 5.690 | 2.745 |
| 6 | 10.925 | 4.975 | 5.950 | 46 | 8.191 | 5.487 | 2.704 |
| 7 | 10.766 | 5.100 | 5.666 | 47 | 9.142 | 6.437 | 2.705 |
| 8 | 10.553 | 5.236 | 5.317 | 48 | 8.873 | 6.289 | 2.584 |
| 9 | 10.326 | 4.635 | 5.691 | 49 | 8.544 | 6.028 | 2.516 |
| 10 | 10.115 | 4.335 | 5.780 | 50 | 8.212 | 5.800 | 2.412 |
| 11 | 9.932 | 4.650 | 5.282 | 51 | 7.990 | 5.699 | 2.291 |
| 12 | 9.740 | 4.859 | 4.881 | 52 | 7.726 | 5.075 | 2.651 |
| 13 | 9.527 | 4.766 | 4.761 | 53 | 7.375 | 4.146 | 3.229 |
| 14 | 9.342 | 4.834 | 4.508 | 54 | 7.023 | 4.084 | 2.939 |
| 15 | 9.127 | 5.766 | 3.361 | 55 | 6.308 | 4.116 | 2.192 |
| 16 | 8.728 | 6.587 | 2.141 | 56 | 4.062 | 2.770 | 1.292 |
| 17 | 7.944 | 6.212 | 1.732 | 57 | 8.999 | 6.334 | 2.665 |
| 18 | 6.220 | 4.775 | 1.445 | 58 | 8.560 | 6.336 | 2.224 |
| 19 | 3.886 | 2.235 | 1.651 | 59 | 8.227 | 6.036 | 2.191 |
| 20 | 8.539 | 4.894 | 3.645 | 60 | 7.906 | 5.675 | 2.231 |
| 21 | 9.435 | 4.699 | 4.736 | 61 | 7.585 | 5.332 | 2.253 |
| 22 | 9.710 | 4.733 | 4.977 | 62 | 7.208 | 4.910 | 2.298 |
| 23 | 9.821 | 4.770 | 5.051 | 63 | 6.940 | 4.728 | 2.212 |
| 24 | 9.777 | 4.827 | 4.950 | 64 | 6.629 | 4.109 | 2.520 |
| 25 | 9.512 | 4.831 | 4.681 | 65 | 6.225 | 3.610 | 2.615 |
| 26 | 9.204 | 4.758 | 4.446 | 66 | 5.784 | 3.425 | 2.359 |
| 27 | 8.898 | 4.652 | 4.246 | 67 | 9.317 | 6.181 | 3.136 |
| 28 | 8.618 | 4.497 | 4.121 | 68 | 9.141 | 6.120 | 3.021 |
| 29 | 8.324 | 4.201 | 4.123 | 69 | 8.813 | 5.989 | 2.824 |
| 30 | 8.045 | 4.246 | 3.799 | 70 | 8.110 | 5.567 | 2.543 |
| 31 | 7.780 | 4.771 | 3.009 | 71 | 6.600 | 4.454 | 2.146 |
| 32 | 7.537 | 4.747 | 2.790 | 72 | 4.800 | 2.786 | 2.014 |
| 33 | 7.255 | 3.786 | 3.469 | | | | |
| 34 | 6.857 | 3.397 | 3.460 | | | | |
| 35 | 5.909 | 4.318 | 1.591 | | | | |
| 36 | 8.017 | 5.601 | 2.416 | | | | |
| 37 | 8.494 | 5.876 | 2.618 | | | | |
| 38 | 8.827 | 6.053 | 2.774 | | | | |
| 39 | 9.077 | 6.215 | 2.862 | | | | |
| 40 | 9.328 | 6.255 | 3.073 | | | | |

1. UNIT WEIGHT OF EXISTING WASTE ASSUMED AS 95 PCF.
2. "TOTAL" SETTLEMENT ESTIMATED DURING 40 YEARS.
3. "INITIAL" SETTLEMENT ESTIMATED TO HAVE OCCURRED WITHIN THE LAST 3 YEARS.
4. "RESIDUAL" SETTLEMENT ESTIMATED TO OCCUR IN NEXT 40 YEARS (RESIDUAL = TOTAL – INITIAL).

NOTES:

1. INFORMATION SHOWN HEREON REGARDING EXISTING FEATURES, GROUND TOPOGRAPHY AND PROPERTY/EASEMENT LINES BASED ON A GROUND SURVEY COMPLETED IN APRIL 2005 BY VANDEMARK & LYNCH, INC., 4305 MILLER RD., PO BOX 2047, WILMINGTON, DE 19899, (302) 764–7635.
   HORIZONTAL DATUM: PREMCOR DELAWARE CITY PLANT
   VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM 1929
2. PROPOSED CONTOURS SHOWN HEREON REFLECT ESTIMATED CONDITIONS AFTER LONG–TERM, POST–CLOSURE SETTLEMENTS HAVE OCCURRED (INCLUDES) IMMEDIATE ELASTIC, PRIMARY CONSOLIDATION, AND SECONDARY COMPRESSION OVER 40–YEARS POST–CLOSURE TIMEFRAME.)
3. PROPOSED (POST–SETTLEMENT) CONTOURS INDICATE THAT SURFACE OF FINAL COVER SYSTEM WILL MAINTAIN POSITIVE DRAINAGE AT GRADES OF NO LESS THAN 2%.

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING EDGE OF TREES
- EXISTING FENCE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING INTERIOR PARCEL LINE
- EXISTING EDGE OF HEAVY FOLIAGE
- EXISTING FULL SUPPORTING ELEVATION LINE
- EXISTING RAILROAD
- EXISTING STORMWATER CULVERT
- LIMIT OF LANDFILL LINER SYSTEM (APPROX. BOUNDARY OF LANDFILL)
- EXISTING UNPAVED ACCESS ROAD
- PROPOSED ACCESS ROAD
- APPROXIMATE LIMIT OF NEW FILL PLACEMENT
- 72 EXISTING GEOSYNTHETIC LINER
- 72 PROPOSED FINAL GRADE (MINOR CONTOUR)
- 80 PROPOSED FINAL GRADE (MAJOR CONTOUR)
- S-29 REFERENCE POINT NUMBER

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | BY | CHKD | DATE | DESCRIPTION |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | SMS | JAC | | SUBMITTED WITH CLOSURE PLAN FOR DNREC REVIEW |

WARNINGS

0 0.5 1.0

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

IF THE SEAL ON THIS PLAN IS NOT RED OR RAISED THEN THIS PLAN MAY HAVE BEEN ALTERED AND RECOPIED. ORIGINAL SEALS ARE STAMPED IN RED INK OR EMBOSSED WITH A CRIMPING SEAL.

PLANS ISSUED BY:

URS

335 COMMERCE DRIVE, STE 300
FORT WASHINGTON, PA 19034
TEL: (215) 367–2500
FAX: (215) 367–1000

| | | DATE |
|---|---|---|
| DESIGNED BY: | CWK | 08/31/05 |
| DRAWN BY: | SMS | 12/01/05 |
| CHECKED BY: | CWK | |
| APPROVED BY: | JAC | |
| CLIENT APPROVED BY: | | |

DELAWARE CITY REFINERY
INDUSTRIAL WASTE LANDFILL CLOSURE

SETLEMENT ANALYSIS PLAN

JOB NO. 20240421 | SCALE: 1" = 50'
ORIGINAL DATE: 03/01/05 | LAST REVISED: 12/27/05 | REV. 0
DRAWING NO. FIGURE 5.4

Oct 21, 2005 – 11:11:13 DWG Name: A:\20240421-Melvin_IWL\Working Dwgs\Settlement Analysis Plan.dwg Updated By: smithsw0