

PROJECT REPORT

Final Design Report IL-13 over Big Muddy Slide Mitigation Jackson County, IL DBA Project No. 23-163

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Date: August 13, 2024

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1. Introduction

This final design report presents design concepts for mitigation of slope instability at the twin structures carrying IL-13 over the Big Muddy River in Murphysboro, Illinois. Instability has primarily impacted the west embankment of the eastbound (EB) bridge, but mitigation is recommended for both sides of the river to protect both EB and westbound (WB) structures. The report begins with a brief history of instability at the site before documenting available information from the site to support a discussion of the observed instability. After discussing the instability, the recommended mitigation concept is presented.

The mitigation concept consists of driving closely spaced large-diameter, open-end pipe piles on both sides of the river and continued monitoring of piezometers and inclinometers to verify the effectiveness of the pipe pile stabilization. The report begins with a summary of the most important findings and recommendations. The rest of the report presents information regarding historical instability and subsurface conditions, describes analyses used to develop the design recommendations, and closes with recommendations regarding pile driving, stability during construction, and instrumentation and monitoring.

2. Summary of Findings and Recommendations

The most important findings and recommendations from this report are:

1. Results of extensive groundwater monitoring indicate piezometric elevations within the loam to be 15 ft above the river (i.e. just above the bank elevation) for normal river levels. In addition, piezometric elevations within the west embankment were observed to be as much as 25 ft above the river level. The high piezometric elevations, particularly those within the west embankment, are the primary driver of observed instability on the west side of the river. The source of the elevated piezometric elevations is unknown.
2. Characterization of the loam shear strength using the results of extensive lab testing produced a slope stability model that accurately predicts a marginal factor of safety for existing conditions. The model is based on observed groundwater conditions. Back-calculation of the slope stability corroborates the shear strength measured in the laboratory.

3. To achieve a factor of safety of 1.5, 60-inch diameter by 0.5-inch thick wall (min.) open-ended pipe piles should be driven to bedrock on 10-ft center-to-center spacing. The steel should be Grade 50 or better. Two rows of piles are required for the west bank, with the piles staggered between the two rows. One row is required for the east bank. The piles should be driven from the bank in front of the abutments, with the lines of piles extending approximately 75 ft beyond the edges of the structures. The engineer's cost estimate for the piles, which includes only costs associated with steel piling and installation, is approximately \$2.5M.
4. The piles should be advanced through the sand layer and seated on bedrock. There is no requirement to demonstrate axial resistance during driving and driving should cease upon reaching practical refusal. Preliminary driveability analysis using an assumed hammer indicates the piles can be advanced to bedrock without overstressing and without meeting practical refusal using a commonly available hammer. Specifically, a Delmag D46 was included in the analysis, but other hammers would likely work. The pile driving contractor should perform an independent driveability analysis. Note that the driving stress should be limited to $0.9f_y$, which equates to 45 ksi for Grade 50 steel.
5. It may be necessary and advantageous to advance the piles using a vibratory hammer, at least initially. Vibratory methods may be associated with greater risk of movement of existing piers than impact driving. Plan notes and specifications should therefore be developed to mitigate the risk of ground loss associated with vibratory methods.
6. Piles should be installed using methods that reduce the risk of instability during construction. These include the use of robust crane mats as well as staging construction equipment and scheduling installation operations to reduce instability.
7. Monitoring of existing piezometers and inclinometers should continue on a monthly basis until at least one year after installation of the piles. The monitoring program should also include surveys of the existing structures and instrumentation of select piles. It may be advantageous to increase the frequency of monitoring during pile installation to mitigate the risk of instability due to construction operations.

3. Brief Site History and Summary of Observed Sliding

Originally, IL-13 crossed the Big Muddy on a single structure that was constructed circa 1955 on the same alignment as the current EB bridge. A separate structure for the WB bridge was added in the late 1970s just north of the original bridge, which was left in service to carry EB traffic. Both structures were replaced circa 2015. Below the embankments, soils at the site consist of approximately 50 ft of loam over approximately 20 ft of sand over coal and shale.

Reported stability problems with the EB bridge embankment date back to the original structure. A 1969 IDOT design report supporting the eventual 1970s expansion of IL-13 noted "some stability problems have occurred in the past on the abutments of the existing Big Muddy structure; therefore this area may require some special attention during its design." The soils report for the 1970s expansion notes "excessive settlement of the existing pavement has occurred in the past for this area, which may require special attention in the design of the proposed improvement." The soils report proceeded to recommend sand drains to expedite settlement of the WB embankment. The WB embankment was, in fact, constructed with sand drains, as well as piezometers and settlement plates to monitor settlement.

In the 1980s, the original (EB) structure was rehabilitated. Settlement and rotation toward the river was noted but attributed to abutment settlement. A 2005 slope stability analysis by District 9

indicated a factor of safety of 1.27 for a deep sliding surface passing through the embankment and the underlying loam. The 2010 SGR for the replacement (and current) structures suggested setbacks for the abutments as a settlement mitigation technique. The current structures do utilize setbacks, with the abutments approximately 50 ft behind the original locations. In addition, the abutments were anchored.

Despite the setbacks and anchoring, instability of the EB embankment has persisted. By winter of 2022-2023, a void had formed beneath the west abutment of the EB structure, and Pier 4 (the pier closest to the west abutment) had displaced laterally between 4 and 5 inches. Corresponding displacement of the beams sheared the bolts connecting the beams to Pier 4. In response, IDOT installed a new pier founded on drilled shafts just east of Pier 4.

In 2022, IDOT installed four inclinometers (H-1 through H-4) and a piezometer (H-2) as shown in Figure 1. The interpreted sliding surface by IDOT is shown in Figure 2. The interpretation is based on observed movement in inclinometers H-1 and H-2, as well as observed pavement distress behind the abutment. As shown in Figure 3(a), inclinometer H-1 indicated deep sliding at the base of the loam, just atop the medium dense sand. This corresponds to a very weak zone observed in CPT-01, a cone penetration test (CPT) sounding that was pushed next to H-1 (Figure 3(b)). The weak zone is likely indicative of low strengths associated with an existing slide plane (i.e., residual shear strength).

Although a potential sliding plane was identified at El. 324 in inclinometer H-2, the magnitude of observed displacement in H-2 is only 0.01 inch from El. 324 to approximately El. 360. The maximum observed displacement at the ground surface, approximately El. 373, is less than 0.1 inch. As shown in Figure 1, inclinometer H-3 is just north of the WB bridge along the access road beneath the bridge. Approximately 2.8 inches displacement has been observed in the top 10 ft of H-3, with movement occurring in a direction approximately 30 deg. toward the A+ direction from the direction of B+ (Figure 1). Inclinometer H-4 was installed on the east side of the river. No significant displacement has been observed in H-4.

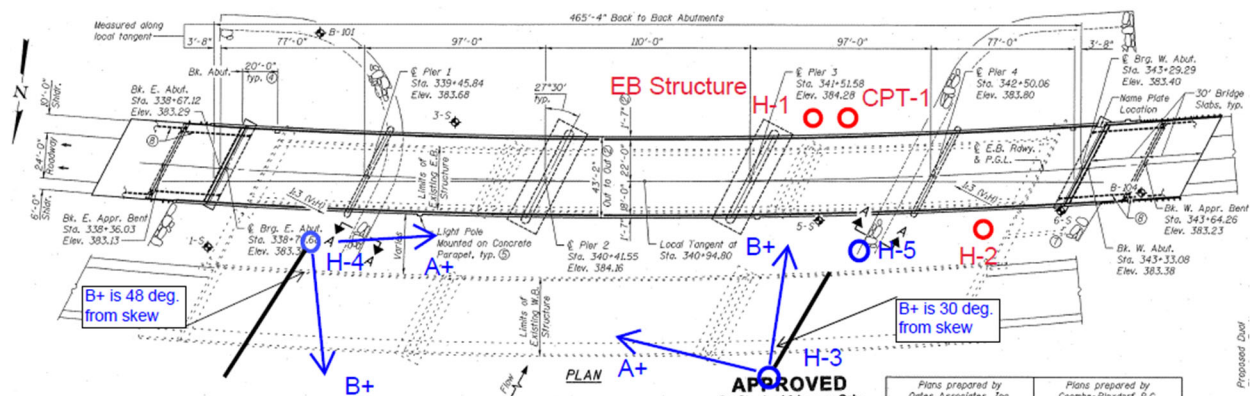


Figure 1: Inclinometer (H-1, H-2, H-3, and H-4) and piezometer (H-2) locations.

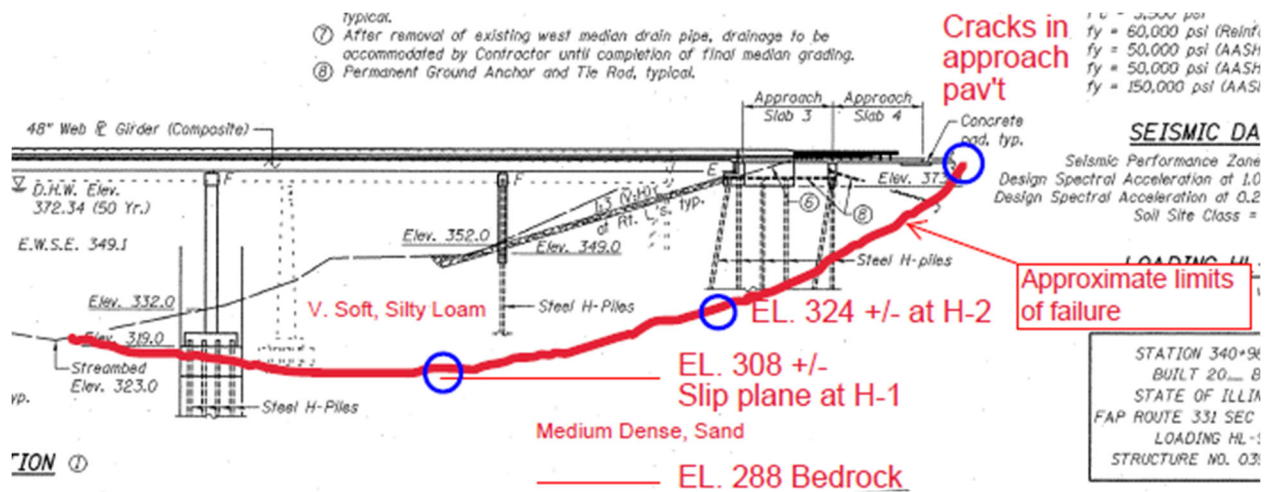


Figure 2: Interpreted sliding surface by IDOT.

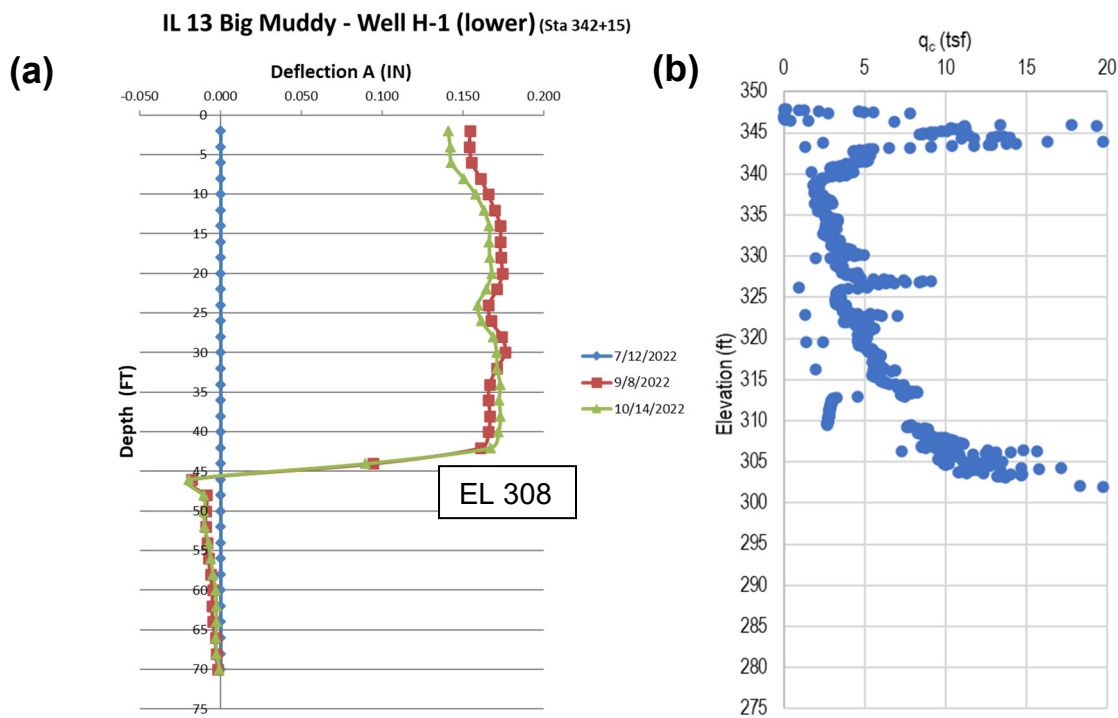


Figure 3: Results from (a) Inclinometer H-1 and (b) CPT-01.

4. Previous Reports and Investigations

At least three previous geotechnical reports have been prepared for the project site:

1. The Soils Report supporting the 1970s expansion of IL-13 to include the WB embankment. As mentioned above, the 1970s report recommended sand drains beneath the WB embankment to accelerate consolidation settlement, which was predicted to last more than 20 years without drains. The 12-inch diameter sand drains were spaced at 5 ft on center, installed by jetting, and tie into a sand blanket at the ground surface. The report calls for the drains to extend to El. 338, or about midway through the loam layer (i.e., not into the underlying sand). The report indicated

- adequate stability of the WB embankment, with stability factors of safety of 1.5 and greater for the Big Muddy area. The report includes logs of 11 borings. Seven borings were intended to support embankment design and include unconsolidated-undrained triaxial tests and consolidation tests; the remaining four borings are for bridge foundations.
2. The 2010 SGR by SCI Engineering, Inc. supporting the replacement of the original bridges with the existing structures. The report includes results from nine borings, six completed by IDOT in 2004 and three by SCI in 2009. The report noted portions of the existing embankment side slopes are “severely eroded.” The report documents slope stability analysis with factors of safety of 1.4 and 1.8 for short-term and long-term stability, respectively. As noted in the previous section, the SGR presented various techniques for mitigating potential settlement, including the option of abutment setbacks that was ultimately adopted.
 3. A report by GSG Consultants, Inc. dated September 27, 2023 with slope stabilization alternatives. The report was prepared in response to the advanced distress observed in 2022 and 2023 and described in the previous section. The report primarily documents a series of slope stability analyses that were performed to evaluate existing conditions and structural remediation alternatives. The report attributes the observed instability to rapid drawdown, a phenomenon in which sudden lowering of a reservoir removes the stabilizing effect of ponded water before elevated pore pressures within slope soils have time to drain. Remediation options analyzed for the report include stabilization by drilled shafts, micropiles, deep soil mixing, and soldier pile walls as well as an option involving modified geometry.

5. Subsurface Investigation from 2024

Dan Brown and Associates (DBA) recommended an additional subsurface investigation be completed in 2024, primarily to collect additional information regarding groundwater conditions. The emphasis on groundwater conditions was based on the piezometric pressures observed in H-2, which indicated piezometric pressure within the deep sand layer that was consistently at least 10 ft above the river level. It is noted the elevated piezometric conditions in H-2 were the basis for the rapid drawdown analysis in the GSG report.

The 2024 investigation was managed by Millennia Professional Services. Results of the investigation are presented in a Geotechnical Data Report (GDR) by Millennia dated August 9, 2024. As shown in Figure 4 (west side of river) and Figure 5 (east side of river), the investigation includes five new borings and ten new CPT soundings. Upon completion of drilling each boring, an inclinometer casing with three vibrating wire piezometer sensors was grouted in the borehole. The sensors are used to measure pore water pressure at three depths, generally targeting the deep sand layer, a depth near the bottom of the loam, and a depth near the top of the loam.

For each CPT, piezometric elevations were measured at discrete locations via excess pore pressure dissipation tests. During the dissipation tests, the CPT probe was held at a constant elevation until the pore pressure sensor at the tip of the probe indicated pore pressures had reached a steady condition or until four hours had passed, whichever occurred first. Three depths for dissipation testing were targeted along each CPT sounding, with at least one test in the sand and one in the loam. All CPT dissipation tests in sand achieved equilibrium prior to four hours; most of the tests in loam also achieved equilibrium but four did not.

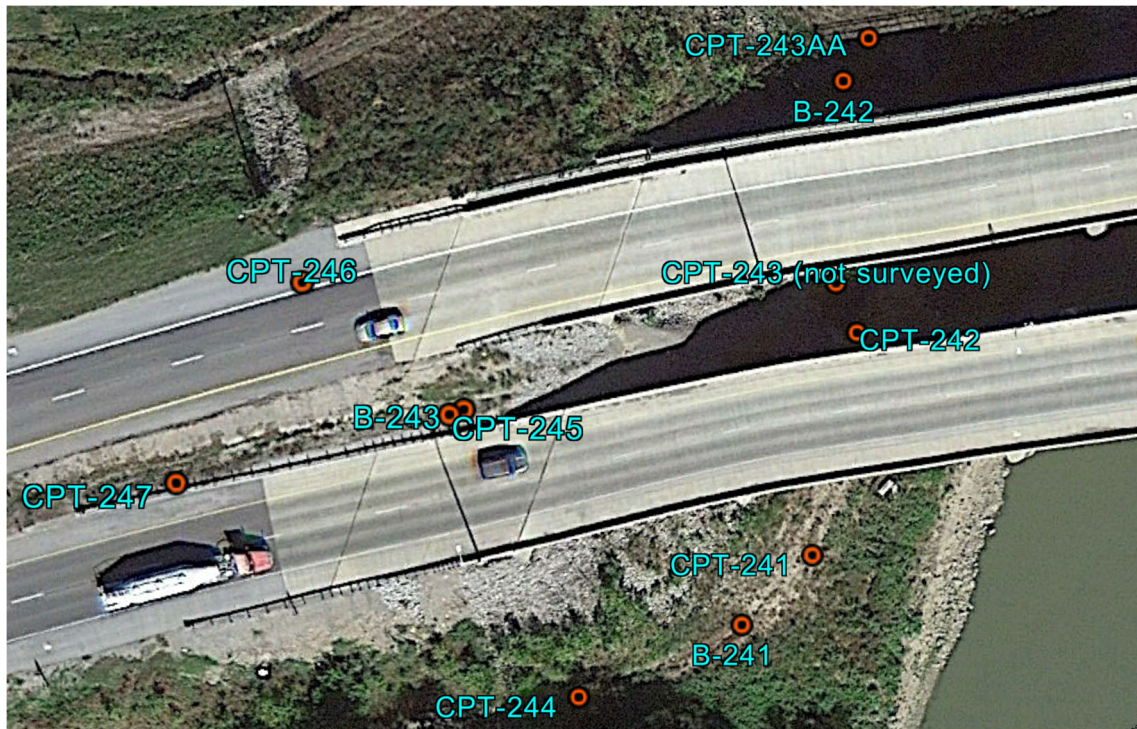


Figure 4: Boring and CPT locations for the 2024 subsurface investigation on the west side of the river.



Figure 5: Boring and CPT locations for the 2024 subsurface investigation on the east side of the river.

A series of laboratory tests was performed using relatively undisturbed thin-wall Shelby tube samples of the loam. The lab tests are intended to characterize the shear strength and stress history of the loam. Shear strength testing included unconsolidated-undrained (UU) triaxial tests within the embankment fill and loam, as well as consolidated-undrained triaxial tests with pore pressure measurements (CU-bar) within the loam. Attempts were also made to characterize the residual strength of the loam with residual direct shear tests. In a residual direct shear test, the direct shear box is displaced back-and-forth to achieve increasingly greater displacement with each cycle in an attempt to characterize residual shear strength. Unfortunately, tests of remolded specimens from split spoon samples resulted in unrealistically low strengths (zero shear resistance, even negative resistance in one case), and tests of relatively undisturbed specimens from Shelby tube samples resulted in unrealistically high strengths (strength that increased when the shear box direction was reversed).

6. Overview of Subsurface Conditions

As mentioned in the introduction, subsurface conditions at the site consist of approximately 50 ft of loam overlying approximately 20 ft of sand atop bedrock, which typically consists of a few feet of coal over shale. The loam is an alluvial deposit that varies in composition, but predominately consists of silt-sized particles. Tests from the 2024 borings indicate the percentage of silt particles ranges from 37 to 87, averaging 61. Clay-sized particles comprised an average of 22 percent of the samples, with sand-sized particles averaging 17 percent. These percentages are comparable with values from the 2010 SGR borings. Uncorrected Standard Penetration Test (SPT) N values in the loam from the 2024 borings range from 1 to 13 blows/ft (bpf), averaging 5 bpf. Of the 41 SPTs in loam, 27 resulted in N values from 3 to 5 bpf, with only three values less than 3 bpf. Within the sand, SPT values ranged from 10 to 36 bpf, averaging 24 bpf. These values are from the 2010 SGR borings; the 2024 investigation blind drilled (drilled without sampling) through most of the sand.

Borings indicate the embankments are comprised of lean clay fill. The 1954 plans for the original, EB embankment indicate embankment material came from a borrow pit near North St. in Murphysboro. The 1970s Soils Report for the WB embankment indicates embankment material came from “unrestricted” material, primarily loess, to be excavated in earthwork operations for the same roadway project, which extended from the project site east to Carbondale. The 1970s report specifically calls out the alluvial loam material as being “restricted” from use as embankment fill.

7. Characterization of the Loam

DBA used results of the laboratory testing presented in the GDR to characterize the loam and develop a shear strength model for use in slope stability analysis. The shear strengths were corroborated with back-calculation of slope stability analysis for the west bank of the EB structure. Moisture content and Atterberg limit results are presented in Figure 6. The index properties are relatively consistent with depth. The moisture content varies from 17 to 70 percent, averaging 30. Liquid limit varies from 25 to 49 percent, averaging 36, and the plasticity index varies from 9 to 33 percent and averages 17. The material classifies as a low plasticity silt (ML). Although the loam is low plasticity, its moisture content is generally near the liquid limit, with an average liquidity index of 0.67. A notable exception is from B-245 near Elevation 342, where the moisture content is 70 percent, compared to a liquid limit of 44 percent. A UU test from this sample resulted in undrained shear strength of 400 psf.

One-dimensional consolidation tests were performed on eight specimens, two from each of the borings except B-241. (B-241 was sampled using a piston sampler device intended for sandy materials, resulting in highly disturbed samples inappropriate for strength and stiffness testing.) DBA interpreted the test results to estimate the maximum past pressure (aka preconsolidation

pressure) from each test, with results plotted versus elevation in Figure 7. The figure includes lines for the estimated in-situ effective stress based on observed groundwater conditions. (The stress is greater for B-243 because of the embankment.) The results indicate the loam is lightly to moderately overconsolidated, with overconsolidation ratios (OCR) ranging from 1.7 to 4.6. Significant variation is observed among the maximum past pressure values, but with no apparent trend by location. Deeper samples produced greater maximum past pressure values in each boring.

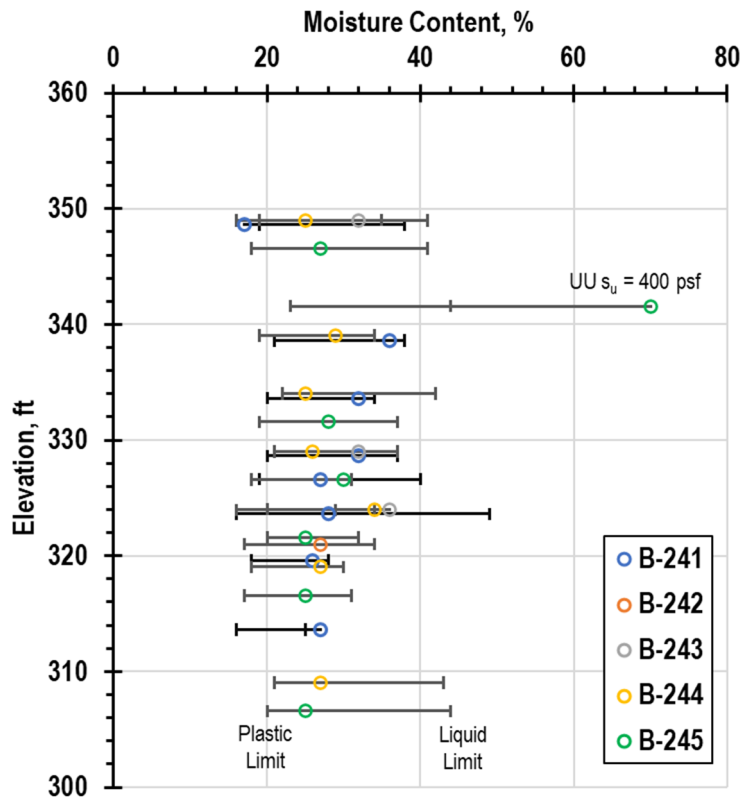


Figure 6: Moisture content and Atterberg limits versus elevation.

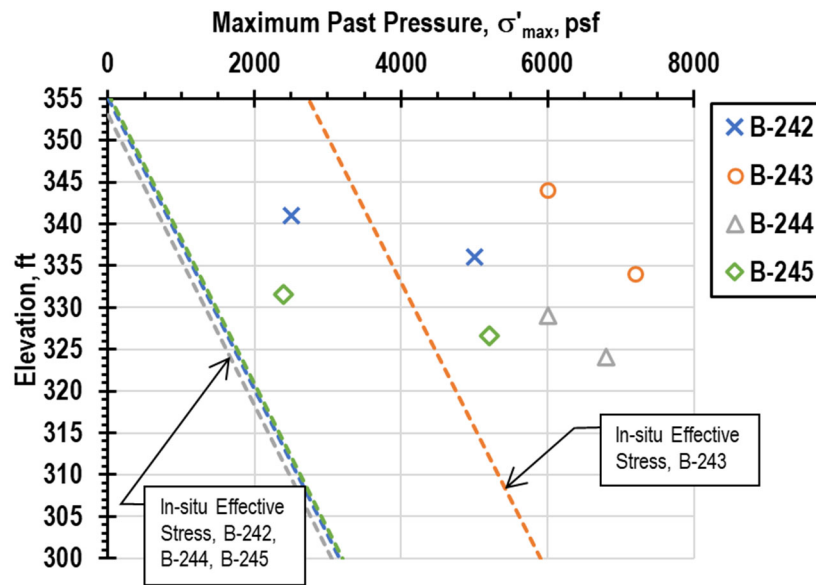


Figure 7: Maximum past pressure versus elevation.

Shear strength of the loam was primarily characterized using CU-bar test results following the Stress History And Normalized Soil Engineering Properties (SHANSEP) technique (Ladd and Foott, 1974). The SHANSEP technique was used to reduce the effects of sample disturbance by consolidating the specimens to stress levels several times greater than in-situ stresses (and greater than the maximum past pressure values from Figure 7) during the consolidation stage of the test. Prior to the shearing stage of the test, most of the specimens are unloaded to achieve known overconsolidation ratios ranging from 2 to 8, while one-third of the specimens were held at the maximum consolidation stress. Results of the shear test are used to determine the ratio of undrained shear strength (s_u) to effective stress (σ'_v) (i.e., the undrained strength ratio).

Results of SHANSEP testing are presented as the undrained strength ratio versus overconsolidation ratio in Figure 8. With the exception of one specimen from B-243 ST-16, the data exhibit relatively small scatter about the overall regression line of $\frac{s_u}{\sigma'_v} = 0.33 \cdot OCR^{0.84}$. The reduction in scatter compared to typical scatter observed in UU testing is a primary advantage of the SHANSEP technique. The specimen from B-243 ST-16 was excluded from the regression because its results were inconsistent with typical results for an overconsolidated specimen (e.g., no clear peak in shear stress was observed, and positive excess pore pressures were generated during shearing). The unusual results are most likely a result of the slickensides observed in the specimen, with the specimen potentially taken from a zone of sliding.

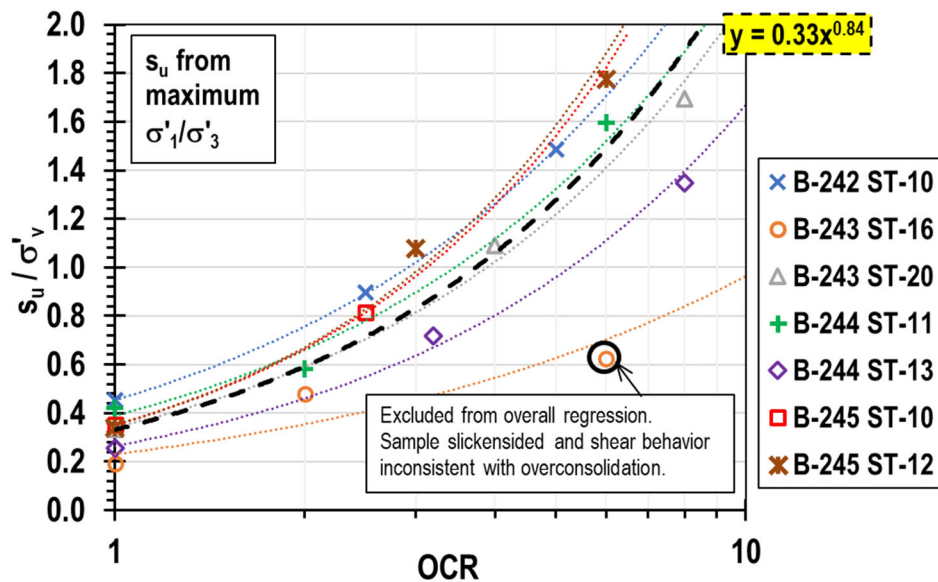


Figure 8: Undrained strength ratio versus overconsolidation ratio from CU-bar tests.

The undrained shear strength associated with the SHANSEP results is plotted versus elevation in Figure 9 for the west side of the river and in Figure 10 for the east side of the river. The undrained strength is calculated from $\frac{s_u}{\sigma'_v} = 0.33 \cdot OCR^{0.84}$, with OCR calculated assuming a maximum past pressure of 3,000 psf based on Figure 7. Also included in each figure are undrained shear results from UU tests and undrained shear strengths estimated from CPT results.

The SHANSEP strength profile was used in the slope stability analysis and in estimation of p-y parameters for laterally loaded pile analysis. The SHANSEP strength profile is more reliable than UU tests because the effects of sample disturbance are reduced, and more reliable than estimates based on CPT, which are subject to considerable uncertainty in the N_{kt} parameter.

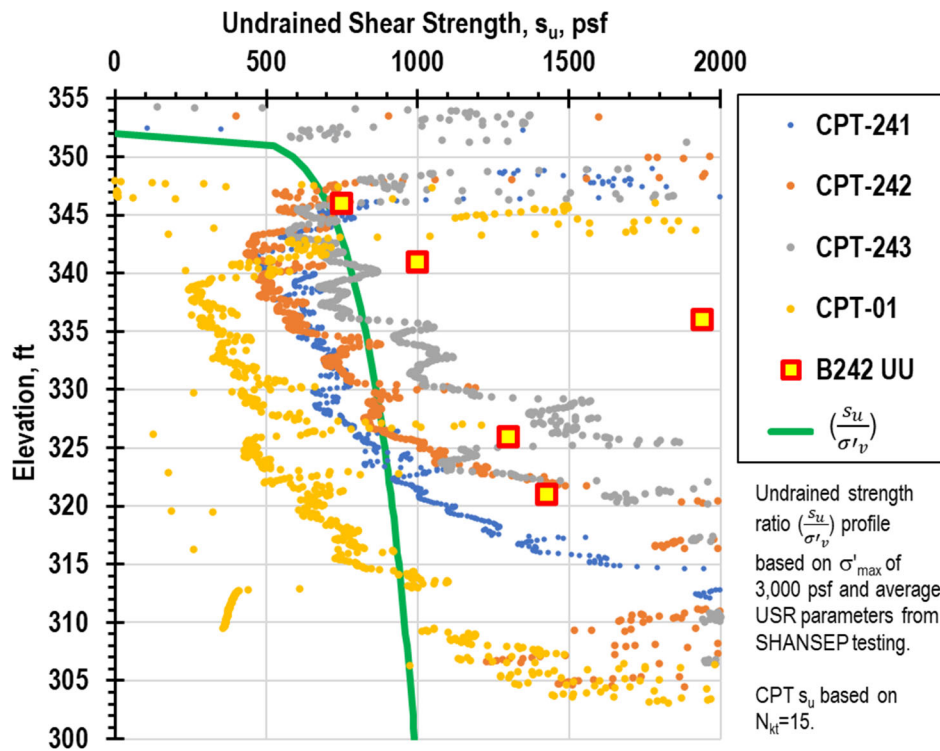


Figure 9: Undrained strength versus elevation for west side of river.

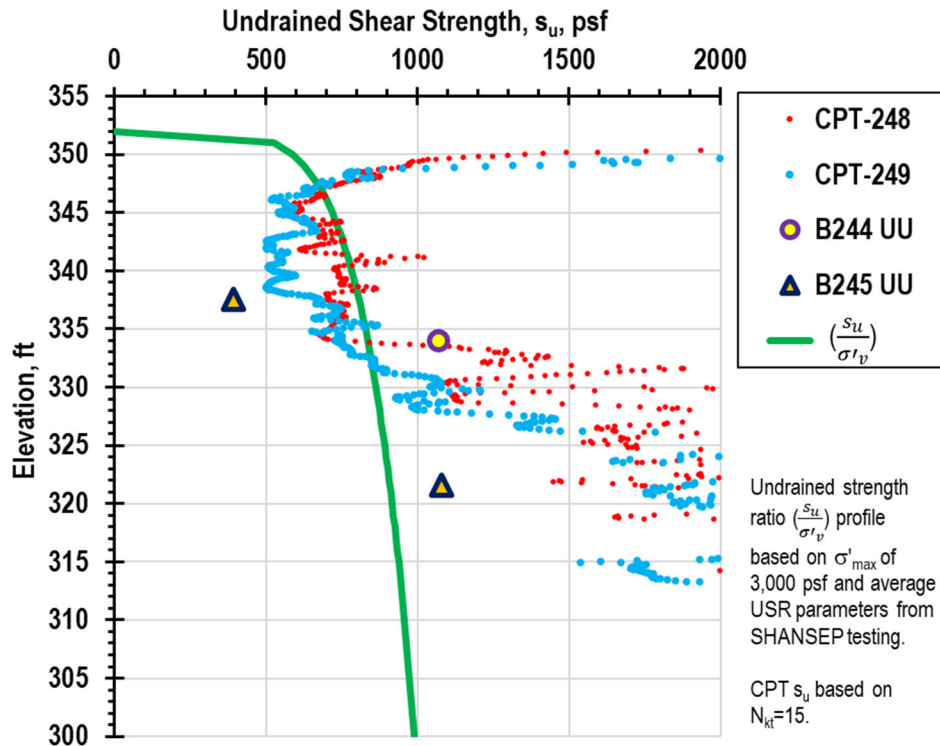


Figure 10: Undrained strength versus elevation for east side of river.

8. Observed Groundwater Conditions

As explained above, the piezometer installed in 2022 (H-2) indicated groundwater pressure within the sand layer that was elevated significantly above the river level. This observation of artesian groundwater conditions motivated installation of 15 additional piezometers, with sensors grouted in place at 3 depths for each of five locations. In addition, CPT dissipation tests were performed at 10 locations, each including tests at no fewer than three depths. Results from the piezometers and dissipation tests are presented in this section.

Piezometer data are presented in Figure 11 for location B-241 and in Figure 12 for location B-243. As shown in Figure 4, B-241 is on the access road beneath the bridge, near the toe of the WB embankment, and B-243 is atop the WB embankment, just behind the abutment. Results for other piezometers are presented in Appendix A. In each plot, piezometer results are presented as piezometric elevation versus time. Piezometric elevation is the elevation to which water would rise if a standpipe piezometer were screened at the location of the vibrating wire sensor. It is calculated by adding the measured pore water pressure in equivalent feet of water (1 ft of water equals 62.4 psf) to the sensor elevation. Three piezometric elevation lines are shown on each plot, one for each sensor. Sensor elevations are indicated in the plot legend. Piezometric elevation from the CPT dissipation tests nearest the piezometer are also shown on the plot. The dissipation test results are indicated with “X” points at the date and time of the test. Finally, each plot also includes lines for the ground surface elevation and the river elevation versus time as well as daily precipitation totals (as vertical bars referring to the right vertical axis).

Results from B-241 indicate piezometric elevations in the upper loam (El. 335), lower loam (El. 320), and sand (El. 304) are all within a couple of feet of El. 355 during times when the river is flowing at El. 340, the “normal” river elevation. Two dissipation tests from CPT-241, both near the top of sand, corroborate the piezometer results from March. Together, the results from B-241 and CPT-241 suggest that for relatively static conditions, groundwater throughout the profile is consistently 15 ft above the river level. There is no clear indication of vertical flow within the profile, with all three sensors recording relatively similar piezometric elevations (and with the greatest value from the middle sensor). As the river rose nearly 20 ft from April through June, piezometric elevations increased but significantly less than the river, with the lower and middle sensors increasing approximately 5 ft and the upper sensor increasing 8 ft to match the river level. The results suggest the artesian effects diminish during times of flooding, which is logical.

As shown in Appendix A, conditions similar to those at B-241 were encountered at B-242 (also from the access road, but north of the WB embankment) and at B-244 and B-245 (both from the east side of the river) during March. For all three piezometer locations, piezometric elevations for all three sensors were at approximately El. 355 throughout March. For all three locations, nearby CPT dissipation tests corroborate the piezometer results, although the dissipation tests from CPT-249 are curiously all 5 ft below the piezometric elevations from B-245, which are consistent at El. 355. Results for B-244 in April through June show similar trends as observed for B-241, with piezometer sensors rising significantly less than the river. Unfortunately, B-242 and B-245 have not collected data since March 2024. Millennia coordinated with Geokon and attributed the problem to issues with the cable trenched through the fill. IDOT should consider replacing the cables to restore operation of the piezometers.

Results from piezometer B-243, which was drilled through the EB embankment just west of the bridge abutment, are notably different from the other piezometers. The sensor within the sand and CPT-245 dissipation tests from four elevations within the loam all indicate piezometric elevation near El. 355 during March, consistent with results from the other piezometers. However, results from the piezometer sensor at El. 339 (in the loam, 15 ft below the ground surface, and just 1 ft above a nearby dissipation test) indicate a piezometric elevation of El. 364, and the

piezometer sensor within the embankment fill (at El. 361) shows a piezometric elevation of El. 378. El. 378 is 25 ft above the natural ground surface (beneath the embankment), and nearly 40 ft above the Big Muddy level during March. Results from B-243 are also unique in that they show little to no response to rising river levels.

Results from the middle and upper B-243 sensors are perplexing. In part, this is because the results are starkly different from the other piezometer results. In addition, it is difficult to explain how such great pressures could be observed within an embankment when pressures within the underlying strata are significantly and consistently lower. However, it would likely be unwise to ignore the B-243 results as an inconsequential outlier or measurement error. Although the dissipation test curve is somewhat unusual (with an abrupt termination of dissipation), the dissipation test from El. 340 in CPT-246 (just north of the WB embankment) also indicates a piezometric elevation above El. 370. In addition, there is an existing PVC pipe that discharges at the north face of the WB embankment near approximately El. 375 and is consistently flowing, even during extended periods with no rainfall.

The observations described in the preceding paragraph motivated the recommendation for the project team to investigate potential sources of groundwater within the embankment or upper portion of the underlying foundation (e.g., a leaking or broken pipe). Unfortunately, research by IDOT in coordination with the City of Murphysboro did not reveal any explanation for the observed groundwater pressures and the source of the artesian pressures remains unknown.

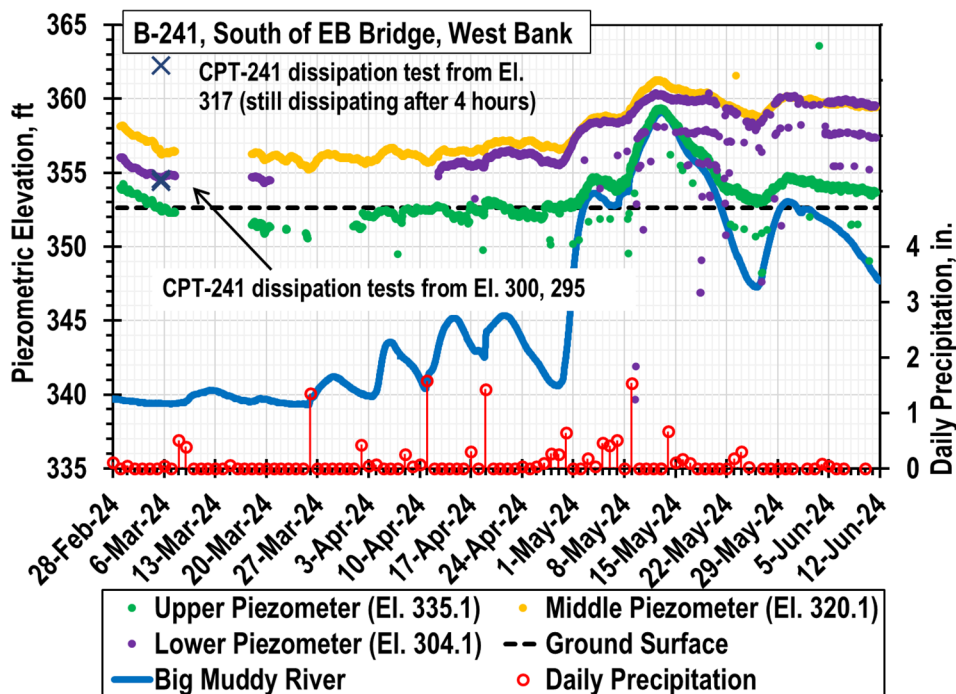


Figure 11: Results from Piezometer B-241 and CPT-241 dissipation tests.

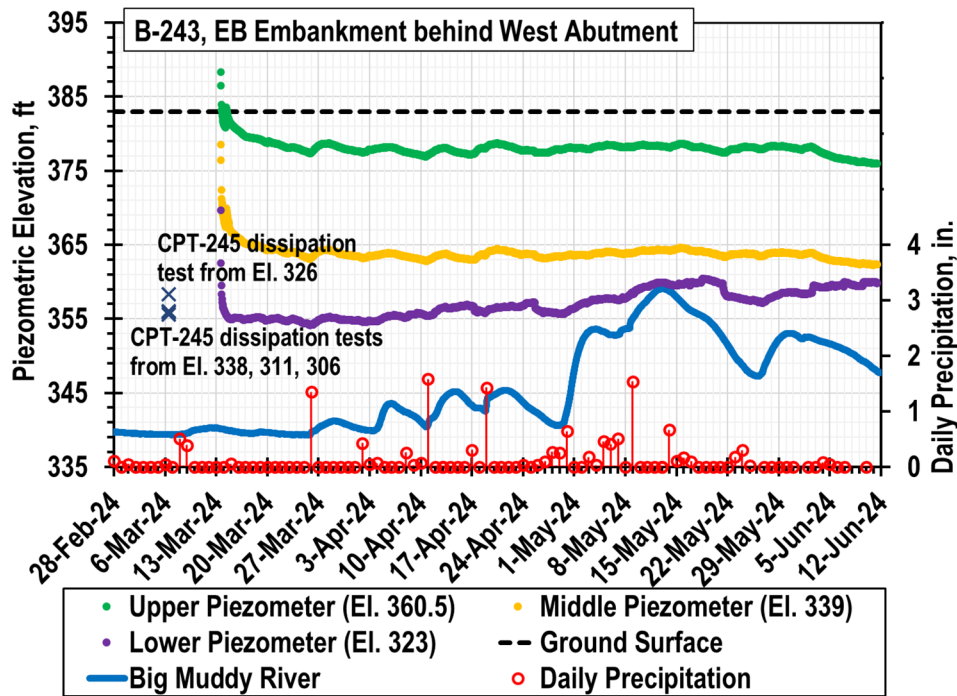


Figure 12: Results from Piezometer B-243 and CPT-245 dissipation tests.

A summary of all groundwater information from March 2024 is presented in Figure 13. The figure is a cross-section of the subsurface looking upstream, with the west embankment on the left side of the plot and the east embankment on the right. The solid black line shows the ground surface, and the river is shown with the horizontal blue line at El. 340. The elevation of the top of sand is shown with gold points near the bottom of the plot, with a different symbol for each subsurface exploration, as indicated in the legend. Vertical lines are used to represent locations with piezometric information, with solid lines for vibrating wire piezometers and dashed lines for CPT dissipation tests. Importantly, the vertical lines are not placed at precise locations on the cross-section; for clarity of presentation, most of the lines are shifted from their actual location so that all results can be included on the plot. On each vertical line, horizontal ticks are used to represent elevations where piezometric information is measured, with green for the bottom sensor or dissipation test, blue for middle, and purple for top. The open symbols near the top of the vertical lines are the observed piezometric elevations, with colors corresponding to the sensor colors. Boring or CPT designations are shown with labels near each point.

The piezometric elevations indicated with the open symbols are consistent with the discussion of results from B-241 and B-243 above. A significant majority of the information – results from more than 40 dissipation tests or piezometer sensors – indicate piezometric elevation between El. 352 and 358. However, several important outliers stand out. As discussed above, the middle and top sensors from B-243 indicate piezometric elevations of El. 364 and 378, respectively, and the dissipation test in the upper loam of CPT-246 also indicates a piezometric elevation above El. 370. The upper loam dissipation test from CPT-247 (the sounding furthest behind the west abutment) was terminated at 4 hours with the piezometric elevation at El. 376 and still decreasing. Fitting an exponential decay curve to the results from that test suggest it would have reached equilibrium near El. 361, which is perhaps a low estimate.

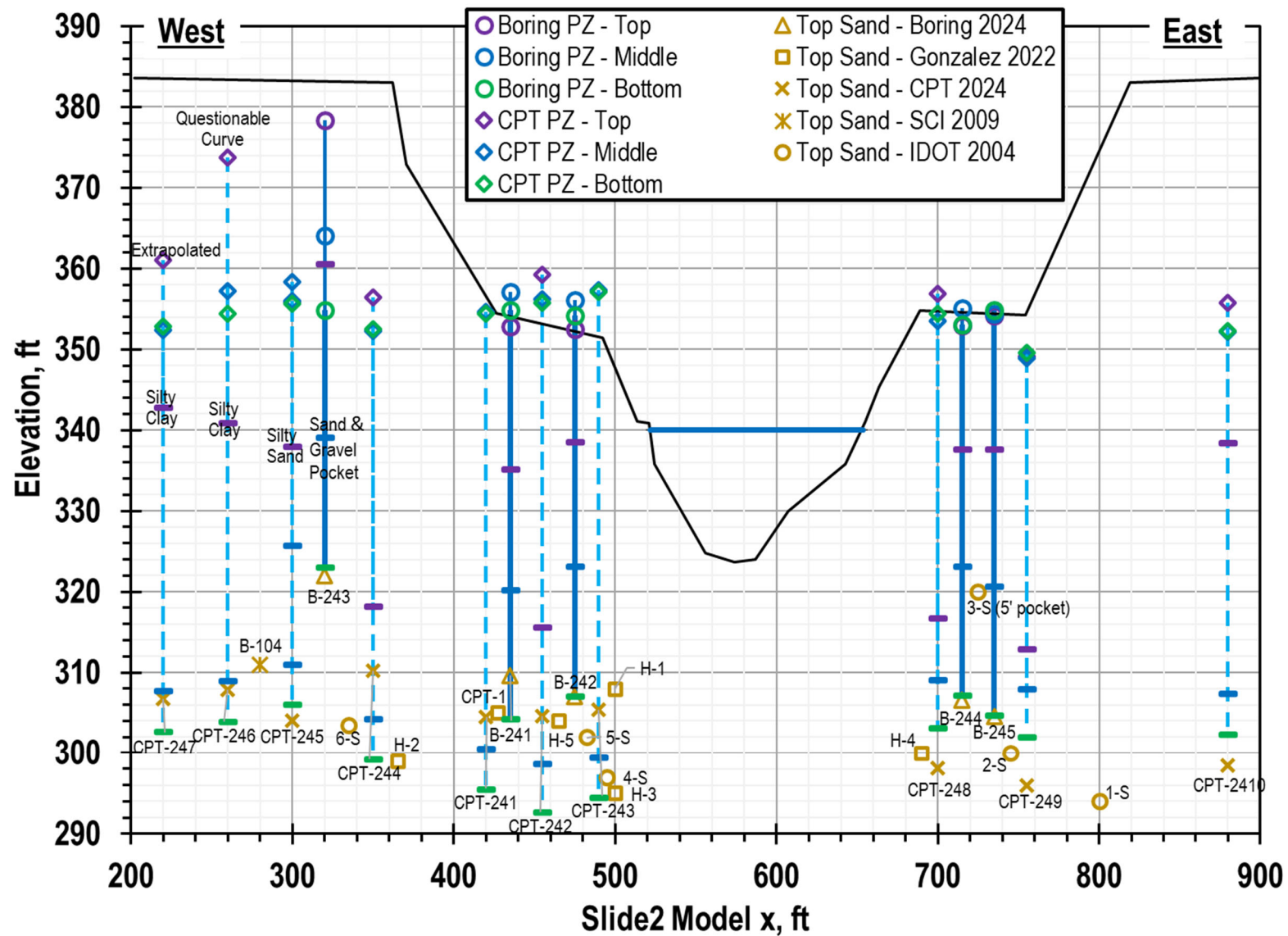


Figure 13: Summary of March 2024 piezometric data.

9. Calibration of Slope Stability Model for Existing Conditions

To evaluate the observed instability, a limit equilibrium slope stability model of the Big Muddy site was created with Rocscience Slide2 (Build 9.034). The goal of calibration is to produce a stability model that can be used to reliably analyze potential remediation concepts. Calibration takes advantage of a valuable piece of information available regarding the Big Muddy west embankment: its factor of safety for stability is near 1.0 based on observed instability.

Important input parameters for limit equilibrium slope stability models include geometry, material properties (strength and unit weight), and groundwater conditions (pore pressures). The geometry for the calibration model is based on the most recent survey data, which includes bathymetric survey information beneath the Big Muddy. Material properties for the calibration model are summarized in Table 1.

Table 1: Material properties for calibration model.

Material	Unit Weight	Strength
Embankment Fill	125 lb/ft ³	Fully softened per Stark and Hussain (2013)
Loam	120 lb/ft ³	SHANSEP model described in Section 7: $\frac{s_u}{\sigma'_v} = 0.33 \cdot OCR^{0.84}$ OCR from σ'_{max} of 3,000 psf
Sand	125 lb/ft ³	Friction angle of 36 deg. (cohesionless)

Several comments support the material property selection:

- Duncan and Wright (2014) note that calibrated strength parameters for failed clay embankment materials generally correspond to fully softened strength, an observation they attribute to wetting and drying cycles. Wetting and drying cycles have presumably occurred for the Big Muddy embankments. To estimate fully softened strength of the embankment material, correlations from Stark and Hussain (2013) were applied. The correlations predict fully softened and residual strength from index properties (liquid limit and clay fraction) based on a large database of ring shear tests. Values corresponding to the average minus one standard deviation were used to improve the calibration.
- The sand strength is modeled with a friction angle of 36 degrees. This is a relatively conservative estimate based on SPT N values in the sand, which averaged 24, but is sufficient to prevent critical sliding surfaces from passing through the sand.
- Unit weight values for the fill and loam are based on average values from Shelby tube specimens. A typical value is used for the sand; results of the stability model are insensitive to the sand unit weight.

To model groundwater conditions, the measured pore pressures are entered into the model as a grid as explained in the preliminary design report and shown in Figure 14. The blue triangles are shown at the piezometer sensor locations, and the values above the triangles are the piezometric elevation. The stability software interpolates between grid points to compute pore pressures along potential sliding surfaces. Results from CPT-246, B-243, and B-241 are used to develop the grid. These locations recorded the greatest piezometric elevations, and they fall along a plan view line that corresponds with observed movement directions. An additional column of points was added near the crest of the embankment using the same values as from B-243. The additional column was included to evaluate the possibility that that elevated pore pressures similar to the B-243 measurements would be observed near the crest if measurements were available. Grid points are

Results of the calibration model are presented Appendix B. The factor of safety for existing conditions is computed to be between 1.1 and 1.2 (specifically, but with more precision than is warranted for slope stability results, 1.18). As noted at the start of this section, a factor of safety near unity is consistent with the history of instability at the site. The calibration model is based on unbiased estimates of (1) shear strength in the loam from a comprehensive laboratory test program and (2) pore pressures from a robust groundwater monitoring system. That these estimates did not require modification to produce an outcome consistent with historical performance of the embankment is evidence of the reliability of the model and the value of the 2024 investigation program. It is also worth noting that the factor of safety for the baseline conditions is greater than would be experienced during periods when the river level falls but the piezometric elevations remain elevated. Such conditions have most likely occurred during the embankment's history, but have not occurred during the monitoring period of this report.



The recommended mitigation technique for Big Muddy is installation of large diameter open-ended driven pipe piles. Like other reinforcement techniques, pipe piles provide reliable, maintenance-free stabilization. Unlike other reinforcement techniques, which are installed by drilling, pipe piles avoid risks associated with elevated groundwater conditions during construction. In addition, pipe piles can be installed more quickly than other types of reinforcement.



**DAN
BROWN
AND ASSOCIATES**

(April 17, 2021). While drainage features are a proven and generally cost-effective mitigation technique that would directly address the primary cause of instability at Big Muddy (elevated groundwater conditions), they have several drawbacks at Big Muddy. Most importantly, they would likely be insufficient to independently increase the factor of safety to 1.5, requiring additional measures. In addition, the drains require periodic maintenance that would be unfamiliar to any DOT and involve uncertain life-cycle costs. Uncertainties due to environmental regulations associated with discharge into the river are also a concern.

Table 2: Remediation alternatives.

Alternative	Description	Limitations
Drainage Features	Install a series of relief wells through river banks and horizontal drains in embankments to reduce pore pressures driving instability.	• Cannot achieve factor of safety of 1.5 without additional mitigation techniques. • Maintenance required to ensure operability of drainage system over time. • Environmental constraints may limit ability to discharge drainage water into river. • Uncertainty in cost, maintenance frequency, and ability to satisfy environmental constraints.
Drilled Shafts	Install drilled shafts to resist the force of the sliding mass.	• Maintaining a stable excavation in the loam and sand will be challenging. • Likely not be possible to install shafts beneath the bridge without temporarily removing girders. • Likely requires permanent steel casing of the same general size as the driven pipe pile solution.
Micropiles	Similar concept to drilled shafts, but with micropiles through a common capping beam, perhaps with ground anchors.	• Maintaining a stable drill hole and grouting would be challenging given groundwater conditions.
Ground Improvement	Use deep soil mixing, jet grouting, timber piles, pipe piles, or other methods to improve the ground resistance.	• May be difficult to achieve desired level of stabilization. • Potential overhead access issues for installation. • Influence of artesian pressure potentially affecting the quality of fluid grout.
Replace Affected Substructures	Replace Pier 4 and perhaps the west abutment to accommodate future movement of the slope.	• Requires re-design of the structure, or at least parts of it. • Requires another shutdown of the structure. • Movement of the slope would most likely continue.
Geometry Changes	Reduce the height of the slope or flatten the slope.	• The overall height cannot be changed. • Flattening the slope is likely not cost effective considering the ground conditions. • Flattening of slope may exacerbate the heave issue.

11. Analysis of Slope Stability with Driven Pile Stabilization

The calibrated stability model was used to analyze potential driven pile remediation schemes. The analyses were performed using LPILE (Version 2022.12.11) to predict pile reinforcement forces and Rocscience Slide2 to analyze slope stability, consistent with the procedures recommended in published reports from the Deep Foundations Institute and the Association of Drilled Shaft Contractors (Turner, et al., 2023; Loehr and Brown, 2008). The procedure uses the p-y method to predict the available shear resistance that can be mobilized in the pile for various potential sliding depths and for different magnitudes of slope displacement. The mobilized shear resistance is then defined as a function of sliding depth, with the resulting function used as an input in the Slide2 stability model. The procedure appropriately accounts for the soil-structure interaction inherent to passive remediation schemes, i.e., for the fact that the available reinforcement force depends on the magnitude of slope movement.

Mobilized shear force functions for various 60-inch diameter open-ended pipe piles are presented in Figure 15. Four functions are shown, each corresponding to a different magnitude of slope movement. The piles are driven through the loam and sand layers to bedrock, which is estimated at a depth of 68 ft beneath existing grade at the banks. Only 60-inch piles are considered because this is the minimum size to achieve the required factor of safety. For each of the functions, the mobilized shear force increases with the potential sliding depth. The greatest forces would be mobilized in the sand layer, but the forces within the sand are of little practical interest because sliding surfaces extending into the sand are unrealistic. The mobilized shear forces also increase significantly with slope movement. At 48 ft, which is near the depth of observed sliding from the inclinometer, the predicted mobilized shear force for 12 inches of slope movement is 500 kips, compared to 200 kips for 2 inches of slope movement. Because of the greater forces, greater wall thickness is required for greater slope movement.

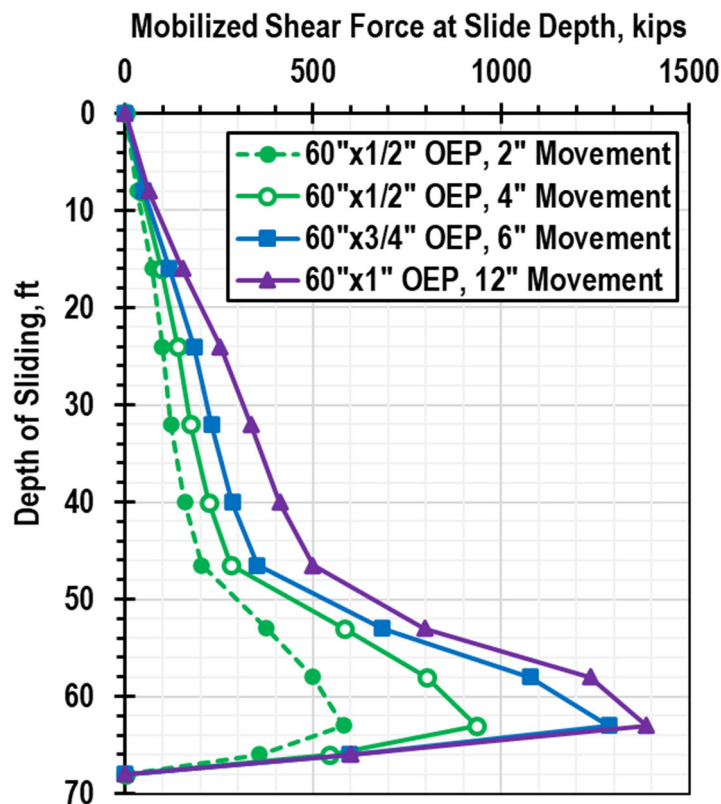


Figure 15: Mobilized shear force as a function of sliding depth.

The mobilized shear force functions from Figure 15 were used in the calibrated slope stability model presented in Section 9 to evaluate various remediation schemes. The forces from Figure 15 were divided by different pile spacing values (center-to-center) for entry in the two-dimensional model. Results from the model are shown in Figure 16, a plot of factor of safety versus pile spacing for two different levels of slope movement, 4 and 12 inches. Because greater movement mobilizes greater shear resistance, designing for 12 inches of movement is associated with greater factors of safety. Slope movement of 4 inches is a more practical design level, with reduced serviceability concerns as well as lower costs per pile because of reduced wall thickness.

Cost estimates in the figure are based on material costs of \$0.70 per pound, installation costs of \$200 per foot of pile, and an assumed length of improvement of 500 ft (250 ft on each side of the river). Other costs are not included.

As indicated in the figure, the recommended design scheme is 60-inch diameter by 0.5-inch thick open-ended pipe piles on 10 ft center-to-center spacing. The steel should be Grade 50 or better. This achieves a factor of safety greater than 1.5 for a design slope movement of 4 inches. It is important to recognize that the design level of slope movement is unlikely to be realized after installation. The slope will only move as far as necessary to mobilize a resisting force that halts movement. Because the stabilization is designed for a factor of safety of 1.5, the observed displacement is anticipated to be notably less than the design value. In other words, the factor of safety of 1.5 is "baked in" to potential movement of the pile beyond the level necessary to maintain stability.

Two rows of piles are required for the west bank, with the piles staggered between the two rows. As presented in the next section, one row of piles is required for the east bank. The piles should

be driven to bedrock from the bank in front of the abutments, with the lines of piles extending approximately 75 ft beyond the edges of the structures.

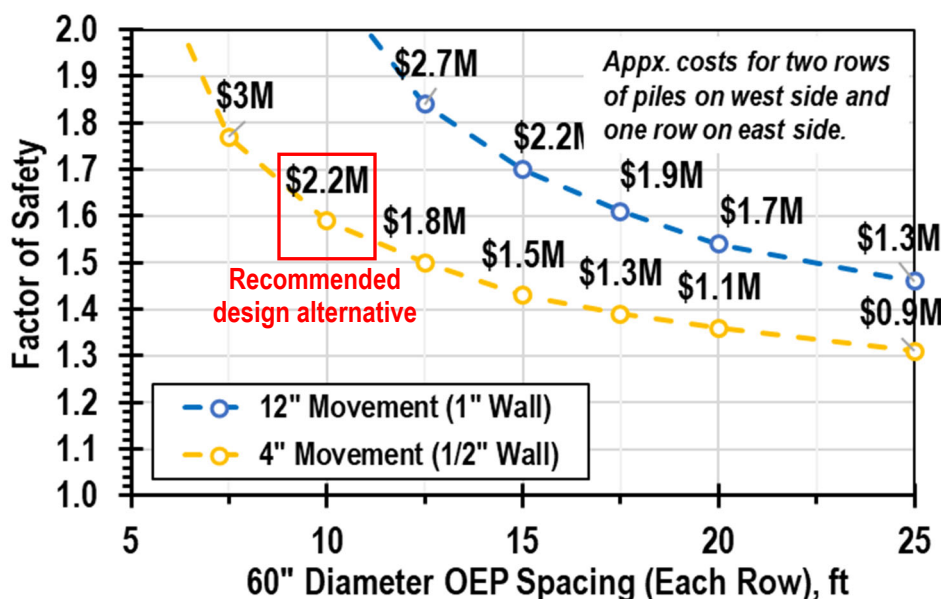


Figure 16: Factor of safety versus pile spacing for two different slope movement values.

Detailed results of the analysis for the recommended design scheme are presented in Appendices C, D, and E. Appendix C presents the LPILE output for 60-inch diameter by 0.5-inch thick pipe piles at 4 inches of slope movement. The LPILE models include a p-multiplier of 0.8 to account for pile spacing. The p-y parameters used for the soil layers are consistent with the parameters used in the calibration model (Section 9). In addition, the stiffness of the p-y model for the loam (specifically, the ε_{50} parameter) is based on UU test results. Soil movement is modeled as a constant value above the depth of sliding, with a 3-ft thick transition zone (from the assumed soil movement value to zero) centered at the depth of sliding. Appendix D is calculations demonstrating the pile structural resistance is adequate for bending moment and shear. Appendix E is output from Slide2 with the pile reinforcement.

12. Stability of East Embankment

Stability of the east embankment was evaluated using the strength parameters from calibration of the west embankment (Section 9) and groundwater conditions from the piezometer of B-244 and dissipation tests from CPT-248 and CPT-2410. Results are shown in Appendix E. For these baseline conditions, the model indicates a factor of safety of 1.3. This is consistent with a lack of observed performance issues on the east side of the river. Both sides of the river have similar materials and geometry; the difference in stability primarily results from differences in piezometric conditions. While baseline piezometric elevations of 355 ft are observed in the sand and loam on both sides of the river, piezometric elevations of 375 ft were only observed within the west embankment. To improve the factor of safety for the east embankment to 1.5, a single row of piles is required. Other than being installed in a single row, the piles should equivalent to those for the west embankment: 60-inch diameter by 0.5-inch thick, driven to rock, spaced at 10 ft center-to-center, and with the line extending approximately 75 ft beyond either side of the structures.

13. Stability of Riverbanks

The proposed pipe pile remediation plan improves the factor of safety for critical surfaces involving the bridge embankment to 1.5. The remediation does not improve stability for potential slip surfaces in front (i.e., riverward) of the proposed piles. The calibrated stability model does not indicate factors of safety less than 1.5 for such surfaces. However, there is no subsurface information available between the riverbanks, so evaluating stability of potential slip surfaces at the riverbanks using the calibrated model is associated with significantly more uncertainty than evaluating surfaces involving the bridge embankments. For perspective, the model from the preliminary design report (April 17, 2024) indicated factors of safety less than unity for riverbank surfaces. (The old model was based on correlations only, not laboratory tests of shear strength.)

The groundwater conditions indicate stability between the banks could be problematic, with potential seepage instability leading to slope instability. Consider potential heave of the loam between the deepest point in the channel and the top of sand. Groundwater at the top of sand is presumably near El. 355 based on measurements on both sides of the river. At the base of the channel, the water pressure is from the weight of water within the channel. The factor of safety against heave, FS_{heave} , is defined as the ratio of the total stress from soil (σ_{soil}) and water (σ_{water}) to the pore pressure at the base of the loam (u_{base}):

$$FS_{heave} = \frac{\sigma_{soil} + \sigma_{water}}{u_{base}}$$

The factor of safety is unity when the pressure at the base of the loam is equal to the pressure from the weight of overlying soil and water, indicating heave instability is imminent. The factor of safety is plotted versus the loam thickness in Figure 17. For the estimated top of sand elevation of 305, the heave factor of safety is just greater than 1, indicating marginal stability. Seepage instability can progress to slope instability when loss of material due to heave reduces passive resistance and leads to loss of slope stability.

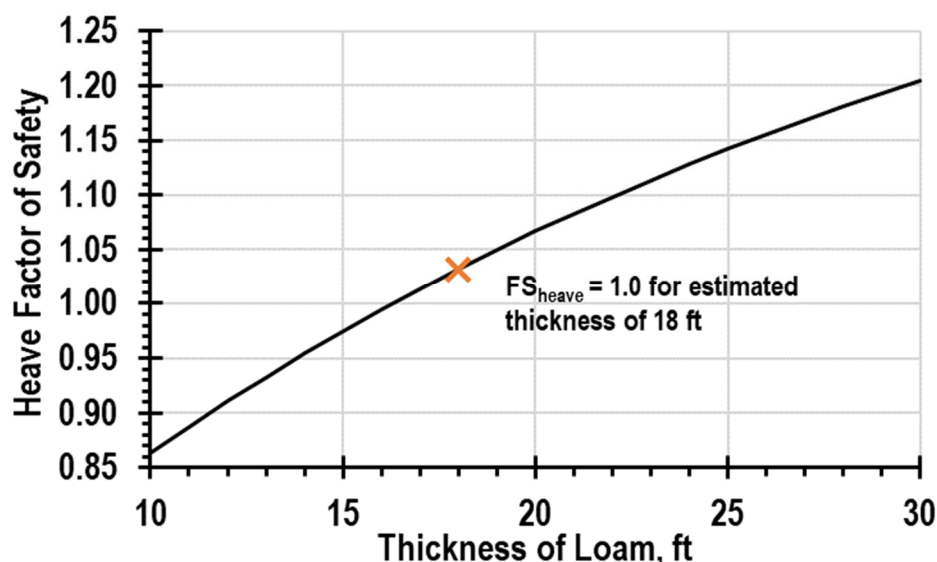


Figure 17: Heave factor of safety versus thickness of loam beneath lowest point in river.

In summary, stability of the riverbanks is uncertain, but likely associated with factors of safety less than 1.5 due to observed groundwater conditions, and because most riverbanks have a factor of safety closer to 1.0. The most effective means for addressing potential seepage instability is

ballast material, preferably rip-rap of size sufficient to reliably resist scour, at the base of the channel, but this is likely impractical due to environmental and navigation constraints. An alternative would be to perform visual inspections of the riverbank slopes, regrading as necessary to maintain the bank alignment.

14. Pile Driveability and Installation Recommendations

There is no requirement to demonstrate axial resistance during driving. Rather, the piles need only be advanced to the top of bedrock in order to provide the required lateral resistance. Pile driveability was evaluated using GRLWEAP 2010. Results are presented in the calculation package of Appendix F. The model was developed using soil input parameters consistent with the slope stability and lateral pile analyses. A pile driving hammer with rated energy of 107 kip-ft (Delmag D-46) was used as a preliminary evaluation of driveability. The Delmag D-46 and similar hammers are commonly available. The model output indicates the piles can be driven to bedrock before meeting practical refusal and without overstressing, with maximum predicted blow counts of 7 blows per inch and compressive stress of 21 kips/in². These results indicate the piles can be driven with commonly available pile driving hammers and without overstressing. The pile driving contractor should perform an independent analysis of pile driveability using details for the intended pile driving system.

It may be advantageous to advance the piles at least partially using a vibratory hammer. Use of vibratory methods can result in ground loss if the pile is vibrated beyond refusal (i.e., after the point at which it stops advancing). Plan notes and specifications should be developed to mitigate the risk of ground loss and effects on the existing bridge associated with vibratory methods.

15. Stability During Construction

Observed instability at the project site indicates the existing slopes are marginally stable under baseline conditions. As discussed in Section 9, the baseline stability model has a factor of safety between 1.1 and 1.2 for observed groundwater conditions and strength based on the SHANSEP model. Because the slope is marginally stable under baseline conditions, there is a risk that loading the slope with heavy construction equipment could produce instability.

For Big Muddy, it is not feasible to precisely analyze slope stability under construction loading for several reasons:

- The baseline factor of safety is between 1.1 and 1.2, which is an unacceptable condition.
- Construction loading will likely have the effect of temporarily decreasing the factor of safety. Even with a model built with high-quality information like the calibration model for Big Muddy, it would be an overreliance of the model to state that loading conditions producing a factor of safety of 1.0 are the precise conditions associated with instability, particularly when starting from a condition of the factor of safety between 1.1 and 1.2.
- Much of the pile installation is anticipated to occur along the banks of the river. As discussed in Section 13, this is the least precise area of the model.
- Two-dimensional slope stability models (like the model for Big Muddy) are inherently imprecise for evaluation of stability with construction loading, which is strongly influenced by three-dimensional effects.

Although quantitative analysis of stability during construction is not useful, several practical recommendations informed by slope stability considerations are important:

1. Heavy construction equipment should be tracked on thick, high-quality crane mats to distribute the loading over a wider area.
2. Construction staging should be carefully considered to improve stability. More stable staging would locate the crane in more stable areas of the slope. For example, pile installation could start with the crane located furthest from the river, with the crane following behind the pile installation. If possible, it may be beneficial to install some piles adjacent to the bridge with the crane parked on the bridge deck (after closing the bridge but before removing the deck).
3. Monitoring during construction could provide valuable information. Monitoring could include daily readings of inclinometers nearest areas of active construction as well as installation of survey monuments.

16. Instrumentation and Monitoring

Existing piezometers and inclinometers should continue to be monitored at least monthly until at least one year after installation of the piles. The monitoring program should also include regular surveys of control points established on the existing structure.

In addition, four of the pipe piles should be instrumented to measure deflected shape and associated loads imposed by the slope after installation. Instrumentation should consist of shape arrays installed within 1-inch, Sch. 40 steel pipes welded to the inside of the pipe pile. The welds should be sufficient for the Sch. 40 pipe to survive driving. The instrumentation will provide important data regarding performance of the piles in response to slope movement. The data will help evaluate stability in the unlikely event significant movement is observed. For the anticipated small levels of slope movement, the data will provide valuable and rare information regarding performance of piles for slope stabilization.

17. Path Forward

The following tasks are recommended to implement the remediation concept:

1. Develop plans and specifications for the pipe pile stabilization scheme. The plan notes and specifications should address the installation recommendations and constructability considerations presented in Sections 14 and 15.
2. Develop an instrumentation and monitoring plan with action levels.
3. Continue monitoring existing instrumentation during the design and construction phase (before transitioning to the instrumentation and monitoring plan of Item 2).
4. Implement the instrumentation and monitoring plan from Item 2.

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Duncan, J.M., S.G. Wright, and T.L. Brandon (2014), *Soil Strength and Slope Stability*, Second Ed., John Wiley & Sons, Inc., New Jersey, 317 p.

Ladd, C.C. and R. Foott (1974), "New design procedure for stability of soft clays," *Journal of Geotechnical Engineering*, American Society of Civil Engineers, Vol. 100, No. 7, pp. 763-786.

Loehr, J.E. and D.A. Brown (2008), "A Method for Predicting Mobilization of Resistance for Micropiles Used in Slope Stabilization Applications," A report submitted to the join ADSC/DFI Micropile Committee, 70 p.

Stark, T.D., and M. Hussain (2013), "Empirical correlations: Drained shear strength for slope stability analyses," *Journal of Geotechnical and Geoenvironmental Engineering*, American Society of Civil Engineers, Vol. 139, No. 6, pp. 853-862.

Turner, B., D. Ding, J.E. Loehr, and P. Axtell (2023), *Guidance for Factoring Deep Foundation Structural Resistance for Landslide Stabilization and Excavation Support*, Final Report CPF-2017-LAND-1, Deep Foundations Institute, 46 p.

APPENDICES

Appendix A: Piezometer Records

Appendix B: Calibration Stability Model Results

Appendix C: Laterally Loaded Pile Model Results

Appendix D: Pipe Pile Structural Resistance

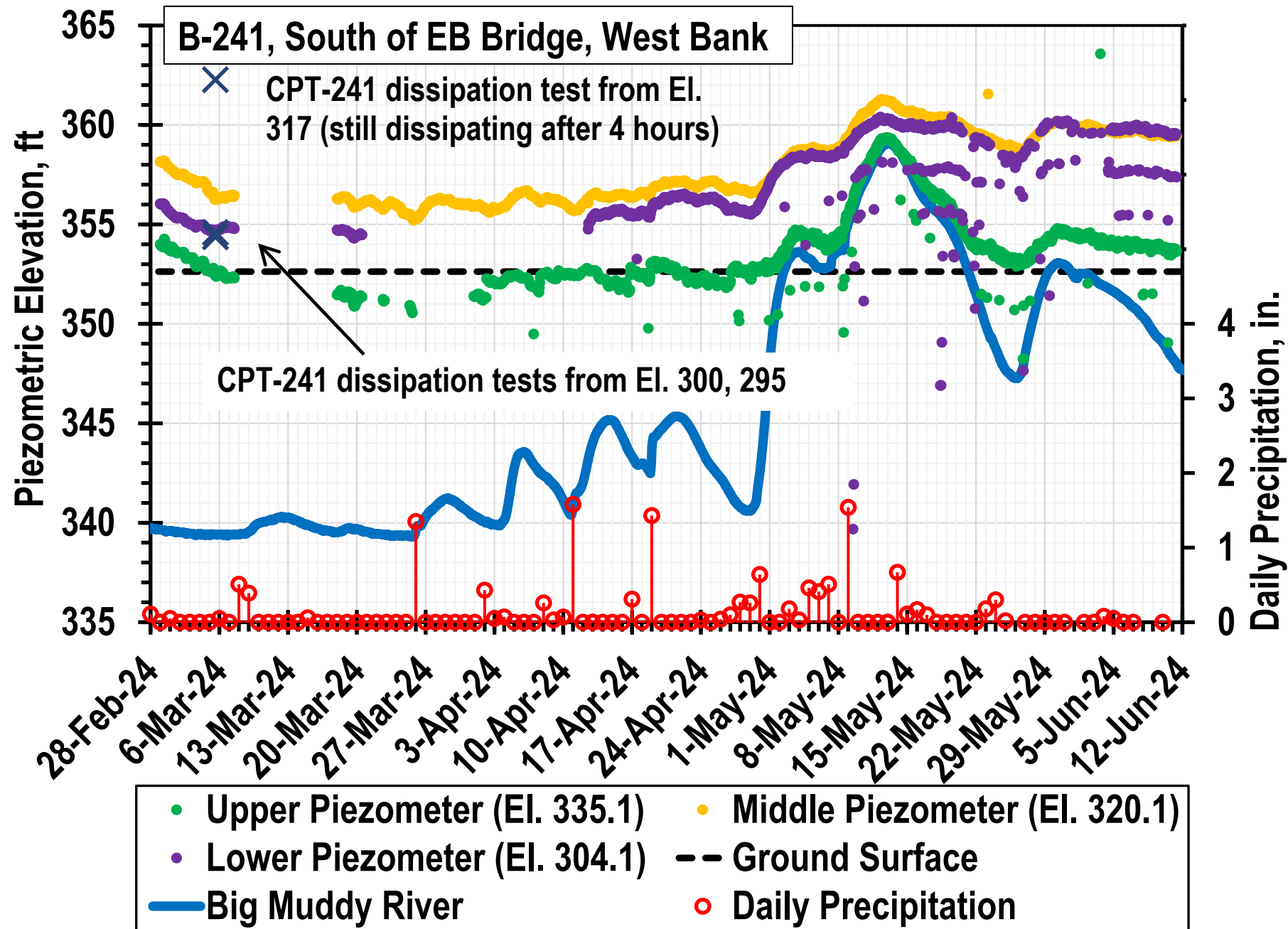
Appendix E: Pipe Pile Stability Model Results

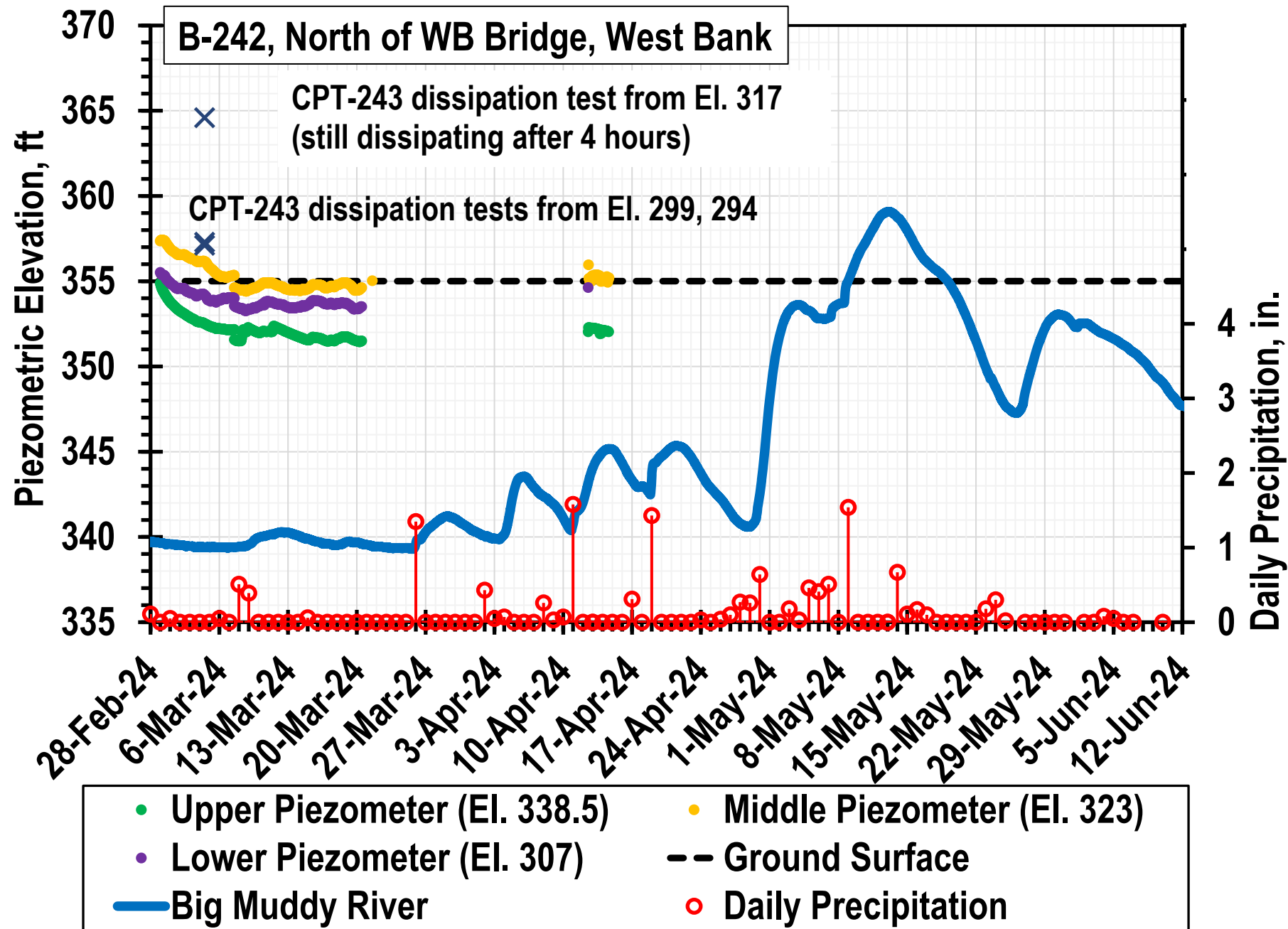
Appendix F: East Embankment Stability Model Results

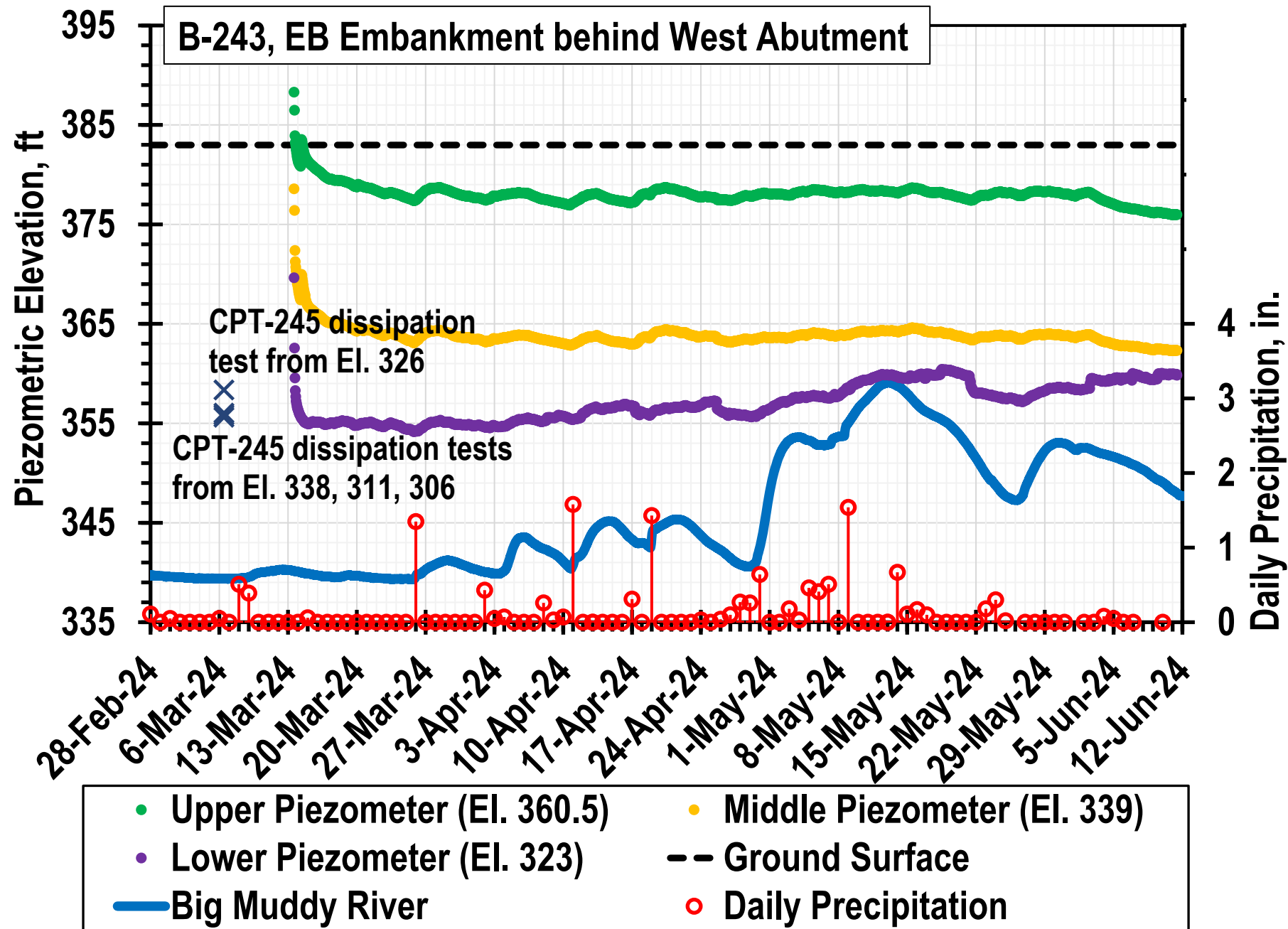
Appendix G: Driveability Analysis Results

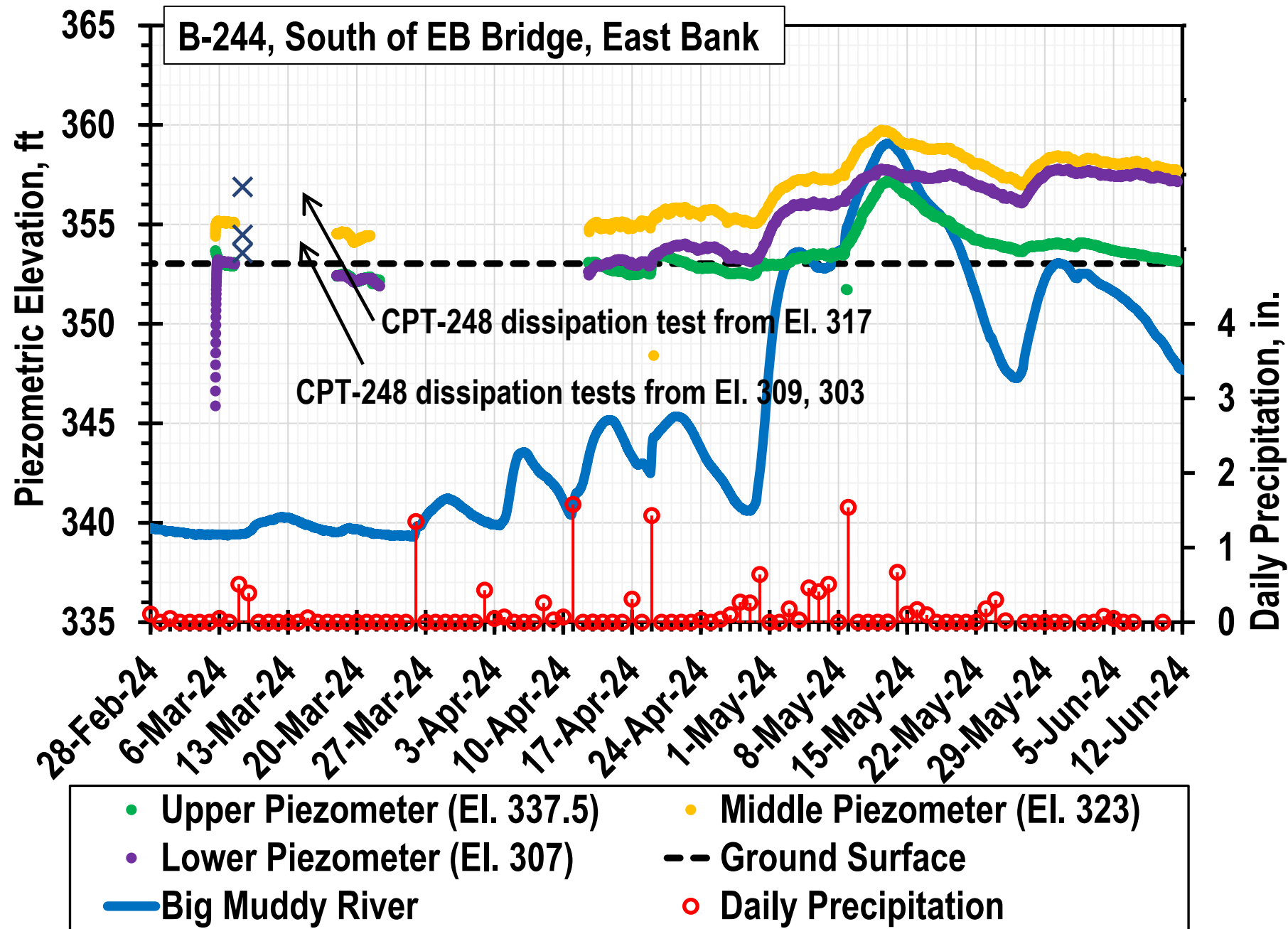
APPENDIX A

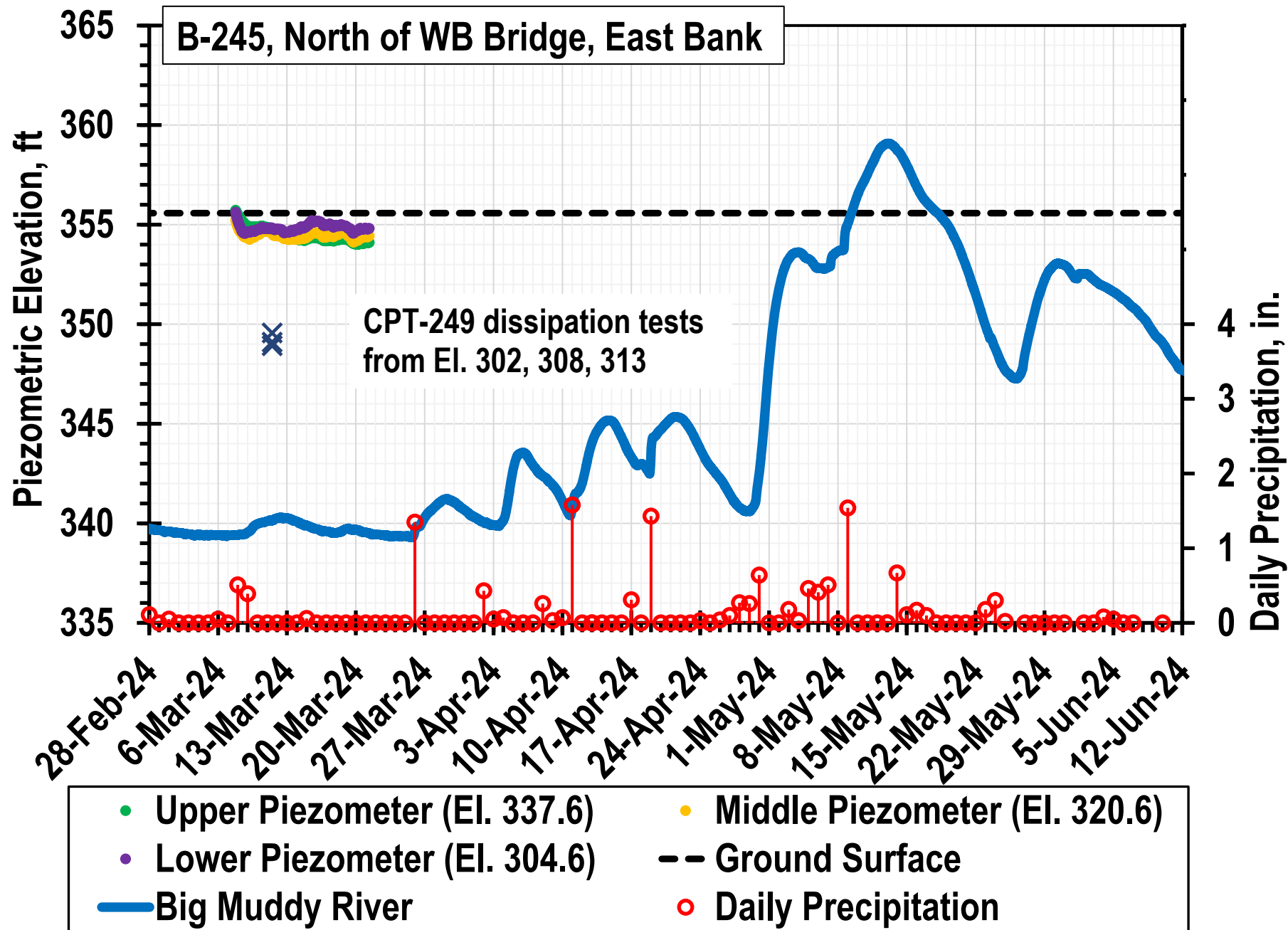
Piezometer Records





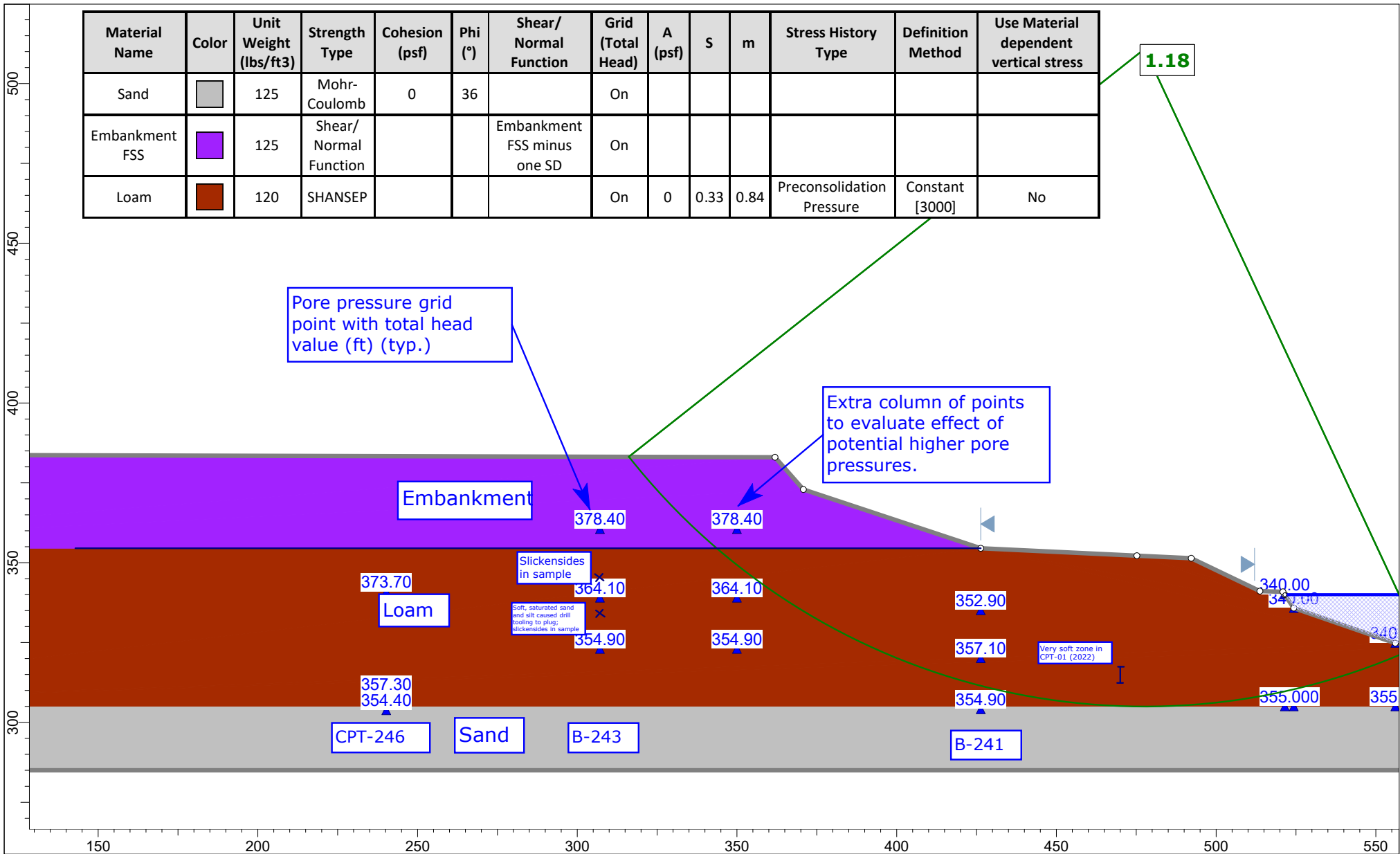






APPENDIX B

Calibration Stability Model Results



	Project		IL-13 over Big Muddy	
	Group		Calibration	Scenario
	Modeled by		A. Boeckmann	Checked by
	Date		8/9/2024	File Name
		BigMuddy Slide Calibration rev12 SHANSEP.slmd		

APPENDIX C

Laterally Loaded Pile Model Results

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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This copy of LPILE is being used by:

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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 08ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 08ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 08ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 08ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:35:37

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	6.50000	4.00000
3	9.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	---
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
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1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	0.4875	0.00235	0.00	-0.00173	1.70E-06	1.20E+12	
348.0159	80.8484	0.00					
0.1360	0.4847	463.4612	571.0678	-0.00173	0.3361	1.20E+12	
351.8214	163.3337	0.00					
0.2720	0.4818	1864.	1148.	-0.00173	1.3519	1.20E+12	
355.6344	164.9714	0.00					
0.4080	0.4790	4212.	1732.	-0.00173	3.0547	1.20E+12	
359.4550	166.6100	0.00					
0.5440	0.4762	7517.	2322.	-0.00173	5.4518	1.20E+12	

363.2832	168.2494	0.00				
0.6800	0.4734	11789.	2918.	-0.00173	8.5507	1.20E+12
367.1188	169.8897	0.00				
0.8160	0.4705	17040.	3520.	-0.00173	12.3588	1.20E+12
370.9620	171.5309	0.00				
0.9520	0.4677	23278.	4128.	-0.00173	16.8835	1.20E+12
374.8127	173.1729	0.00				
1.0880	0.4649	30515.	4743.	-0.00173	22.1323	1.20E+12
378.6710	174.8158	0.00				
1.2240	0.4621	38761.	5364.	-0.00173	28.1125	1.20E+12
382.5369	176.4596	0.00				
1.3600	0.4593	48025.	5992.	-0.00173	34.8317	1.20E+12
386.4102	178.1042	0.00				
1.4960	0.4564	58318.	6626.	-0.00173	42.2973	1.20E+12
390.2912	179.7497	0.00				
1.6320	0.4536	69651.	7266.	-0.00173	50.5169	1.20E+12
394.1796	181.3960	0.00				
1.7680	0.4508	82034.	7912.	-0.00173	59.4980	1.20E+12
398.0757	183.0432	0.00				
1.9040	0.4480	95477.	8565.	-0.00173	69.2480	1.20E+12
401.9793	184.6913	0.00				
2.0400	0.4451	109990.	9224.	-0.00173	79.7745	1.20E+12
405.8904	186.3402	0.00				
2.1760	0.4423	125585.	9890.	-0.00173	91.0852	1.20E+12
409.8091	187.9900	0.00				
2.3120	0.4395	142271.	10562.	-0.00173	103.1874	1.20E+12
413.7354	189.6407	0.00				
2.4480	0.4367	160059.	11240.	-0.00173	116.0890	1.20E+12
417.6692	191.2922	0.00				
2.5840	0.4339	178960.	11925.	-0.00173	129.7973	1.20E+12
421.6106	192.9446	0.00				
2.7200	0.4310	198983.	12617.	-0.00173	144.3201	1.20E+12
425.5596	194.5979	0.00				
2.8560	0.4282	220140.	13314.	-0.00173	159.6649	1.20E+12
429.5161	196.2520	0.00				
2.9920	0.4254	242441.	14019.	-0.00173	175.8395	1.20E+12
433.4802	197.9070	0.00				
3.1280	0.4226	265897.	14729.	-0.00173	192.8514	1.20E+12
437.4518	199.5629	0.00				
3.2640	0.4198	290517.	15446.	-0.00173	210.7084	1.20E+12
441.4310	201.2196	0.00				
3.4000	0.4169	316314.	16170.	-0.00173	229.4182	1.20E+12
445.4178	202.8772	0.00				
3.5360	0.4141	343296.	16900.	-0.00173	248.9883	1.20E+12
449.4122	204.5357	0.00				
3.6720	0.4113	371476.	17637.	-0.00173	269.4266	1.20E+12
453.4141	206.1951	0.00				
3.8080	0.4085	400863.	18380.	-0.00173	290.7408	1.20E+12
457.4236	207.8554	0.00				
3.9440	0.4057	431469.	19130.	-0.00172	312.9386	1.20E+12

461.4406	209.5165	0.00				
4.0800	0.4029	463303.	19886.	-0.00172	336.0278	1.20E+12
465.4652	211.1785	0.00				
4.2160	0.4000	496378.	20649.	-0.00172	360.0162	1.20E+12
469.4974	212.8415	0.00				
4.3520	0.3972	530702.	21419.	-0.00172	384.9115	1.20E+12
473.5371	214.5053	0.00				
4.4880	0.3944	566288.	22195.	-0.00172	410.7216	1.20E+12
477.5844	216.1700	0.00				
4.6240	0.3916	603146.	22978.	-0.00172	437.4542	1.20E+12
481.6392	217.8356	0.00				
4.7600	0.3888	641287.	23767.	-0.00172	465.1172	1.20E+12
485.7016	219.5021	0.00				
4.8960	0.3860	680722.	24563.	-0.00172	493.7185	1.20E+12
489.7716	221.1696	0.00				
5.0320	0.3832	721461.	25366.	-0.00172	523.2659	1.20E+12
493.8491	222.8379	0.00				
5.1680	0.3804	763515.	26175.	-0.00172	553.7673	1.20E+12
497.9341	224.5072	0.00				
5.3040	0.3776	806895.	26991.	-0.00172	585.2306	1.20E+12
502.0267	226.1773	0.00				
5.4400	0.3748	851613.	27813.	-0.00172	617.6637	1.20E+12
506.1268	227.8484	0.00				
5.5760	0.3720	897679.	28643.	-0.00171	651.0745	1.20E+12
510.2345	229.5205	0.00				
5.7120	0.3692	945103.	29479.	-0.00171	685.4709	1.20E+12
514.3497	231.1934	0.00				
5.8480	0.3664	993898.	30322.	-0.00171	720.8609	1.20E+12
518.4724	232.8673	0.00				
5.9840	0.3636	1044073.	31171.	-0.00171	757.2525	1.20E+12
522.6027	234.5422	0.00				
6.1200	0.3608	1095640.	32027.	-0.00171	794.6536	1.20E+12
526.7405	236.2180	0.00				
6.2560	0.3580	1148611.	32890.	-0.00171	833.0722	1.20E+12
530.8857	237.8948	0.00				
6.3920	0.3552	1202995.	33760.	-0.00171	872.5164	1.20E+12
535.0385	239.5725	0.00				
6.5280	0.3525	1258804.	34635.	-0.00170	912.9941	1.20E+12
537.3529	242.9116	0.00				
6.6640	0.3497	1316045.	35508.	-0.00170	954.5099	1.20E+12
532.2926	253.1441	0.00				
6.8000	0.3469	1374703.	36372.	-0.00170	997.0539	1.20E+12
526.7799	264.2732	0.00				
6.9360	0.3441	1434764.	37227.	-0.00170	1041.	1.20E+12
520.7772	276.4351	0.00				
7.0720	0.3414	1496212.	38072.	-0.00170	1085.	1.20E+12
514.2407	289.7963	0.00				
7.2080	0.3386	1559030.	38905.	-0.00169	1131.	1.20E+12
507.1200	304.5630	0.00				
7.3440	0.3358	1623199.	39726.	-0.00169	1177.	1.20E+12

499.3555	320.9935	0.00				
7.4800	0.3331	1688698.	40534.	-0.00169	1225.	1.20E+12
490.8770	339.4169	0.00				
7.6160	0.3303	1755504.	41328.	-0.00169	1273.	1.20E+12
481.5996	360.2594	0.00				
7.7520	0.3276	1823592.	42106.	-0.00168	1323.	1.20E+12
471.4205	384.0841	0.00				
7.8880	0.3248	1892937.	42866.	-0.00168	1373.	1.20E+12
460.2117	411.6526	0.00				
8.0240	0.3221	1963507.	43607.	-0.00168	1424.	1.20E+12
447.8118	444.0237	0.00				
8.1600	0.3193	2035269.	44326.	-0.00168	1476.	1.20E+12
434.0117	482.7186	0.00				
8.2960	0.3166	2108188.	45022.	-0.00167	1529.	1.20E+12
418.5326	530.0139	0.00				
8.4320	0.3139	2182222.	45691.	-0.00167	1583.	1.20E+12
400.9889	589.4945	0.00				
8.5680	0.3111	2257323.	46329.	-0.00167	1637.	1.20E+12
380.8217	667.1908	0.00				
8.7040	0.3084	2333439.	46931.	-0.00167	1692.	1.20E+12
357.1670	774.1954	0.00				
8.8400	0.3057	2410506.	47491.	-0.00166	1748.	1.20E+12
328.5623	933.7019	0.00				
8.9760	0.3030	2488448.	47997.	-0.00166	1805.	1.20E+12
292.1576	1205.	0.00				
9.1120	0.3003	2567168.	48432.	-0.00166	1862.	1.20E+12
240.7691	1810.	0.00				
9.2480	0.2976	2646530.	48739.	-0.00165	1919.	1.20E+12
136.0622	5783.	0.00				
9.3840	0.2949	2726254.	48678.	-0.00165	1977.	1.20E+12
-210.957	2455.	0.00				
9.5200	0.2922	2805416.	48285.	-0.00164	2035.	1.20E+12
-271.231	1515.	0.00				
9.6560	0.2895	2883855.	47841.	-0.00164	2092.	1.20E+12
-272.185	1534.	0.00				
9.7920	0.2869	2961570.	47396.	-0.00164	2148.	1.20E+12
-273.127	1554.	0.00				
9.9280	0.2842	3038557.	46950.	-0.00163	2204.	1.20E+12
-274.057	1574.	0.00				
10.0640	0.2815	3114815.	46502.	-0.00163	2259.	1.20E+12
-274.975	1594.	0.00				
10.2000	0.2789	3190340.	46052.	-0.00162	2314.	1.20E+12
-275.881	1614.	0.00				
10.3360	0.2762	3265130.	45601.	-0.00162	2368.	1.20E+12
-276.775	1635.	0.00				
10.4720	0.2736	3339183.	45149.	-0.00161	2422.	1.20E+12
-277.657	1656.	0.00				
10.6080	0.2710	3412496.	44695.	-0.00161	2475.	1.20E+12
-278.527	1678.	0.00				
10.7440	0.2683	3485068.	44240.	-0.00161	2528.	1.20E+12

-279.385	1699.	0.00				
10.8800	0.2657	3556895.	43783.	-0.00160	2580.	1.20E+12
-280.230	1721.	0.00				
11.0160	0.2631	3627977.	43325.	-0.00160	2631.	1.20E+12
-281.063	1743.	0.00				
11.1520	0.2605	3698309.	42866.	-0.00159	2682.	1.20E+12
-281.884	1766.	0.00				
11.2880	0.2579	3767891.	42405.	-0.00159	2733.	1.20E+12
-282.691	1789.	0.00				
11.4240	0.2553	3836720.	41943.	-0.00158	2783.	1.20E+12
-283.487	1812.	0.00				
11.5600	0.2528	3904794.	41480.	-0.00158	2832.	1.20E+12
-284.269	1835.	0.00				
11.6960	0.2502	3972110.	41015.	-0.00157	2881.	1.20E+12
-285.039	1859.	0.00				
11.8320	0.2476	4038668.	40550.	-0.00156	2929.	1.20E+12
-285.796	1883.	0.00				
11.9680	0.2451	4104464.	40083.	-0.00156	2977.	1.20E+12
-286.540	1908.	0.00				
12.1040	0.2425	4169497.	39614.	-0.00155	3024.	1.20E+12
-287.271	1933.	0.00				
12.2400	0.2400	4233765.	39145.	-0.00155	3071.	1.20E+12
-287.989	1958.	0.00				
12.3760	0.2375	4297266.	38674.	-0.00154	3117.	1.20E+12
-288.694	1984.	0.00				
12.5120	0.2350	4359998.	38203.	-0.00154	3162.	1.20E+12
-289.386	2010.	0.00				
12.6480	0.2325	4421959.	37730.	-0.00153	3207.	1.20E+12
-290.064	2036.	0.00				
12.7840	0.2300	4483148.	37256.	-0.00152	3252.	1.20E+12
-290.729	2063.	0.00				
12.9200	0.2275	4543563.	36781.	-0.00152	3295.	1.20E+12
-291.381	2090.	0.00				
13.0560	0.2250	4603201.	36305.	-0.00151	3339.	1.20E+12
-292.019	2118.	0.00				
13.1920	0.2226	4662061.	35828.	-0.00151	3381.	1.20E+12
-292.644	2146.	0.00				
13.3280	0.2201	4720143.	35350.	-0.00150	3423.	1.20E+12
-293.255	2174.	0.00				
13.4640	0.2177	4777443.	34871.	-0.00149	3465.	1.20E+12
-293.852	2203.	0.00				
13.6000	0.2153	4833960.	34390.	-0.00149	3506.	1.20E+12
-294.436	2232.	0.00				
13.7360	0.2128	4889693.	33910.	-0.00148	3546.	1.20E+12
-295.006	2262.	0.00				
13.8720	0.2104	4944641.	33428.	-0.00147	3586.	1.20E+12
-295.561	2292.	0.00				
14.0080	0.2080	4998801.	32945.	-0.00147	3626.	1.20E+12
-296.103	2323.	0.00				
14.1440	0.2056	5052173.	32461.	-0.00146	3664.	1.20E+12

-296.631	2354.	0.00				
14.2800	0.2033	5104754.	31977.	-0.00145	3702.	1.20E+12
-297.144	2386.	0.00				
14.4160	0.2009	5156544.	31491.	-0.00145	3740.	1.20E+12
-297.644	2418.	0.00				
14.5520	0.1985	5207542.	31005.	-0.00144	3777.	1.20E+12
-298.129	2451.	0.00				
14.6880	0.1962	5257745.	30518.	-0.00143	3813.	1.20E+12
-298.600	2484.	0.00				
14.8240	0.1939	5307153.	30031.	-0.00142	3849.	1.20E+12
-299.056	2517.	0.00				
14.9600	0.1916	5355765.	29542.	-0.00142	3884.	1.20E+12
-299.498	2552.	0.00				
15.0960	0.1892	5403578.	29053.	-0.00141	3919.	1.20E+12
-299.925	2586.	0.00				
15.2320	0.1870	5450593.	28563.	-0.00140	3953.	1.20E+12
-300.338	2622.	0.00				
15.3680	0.1847	5496808.	28073.	-0.00139	3987.	1.20E+12
-300.735	2658.	0.00				
15.5040	0.1824	5542223.	27582.	-0.00139	4020.	1.20E+12
-301.119	2694.	0.00				
15.6400	0.1801	5586835.	27090.	-0.00138	4052.	1.20E+12
-301.487	2731.	0.00				
15.7760	0.1779	5630644.	26598.	-0.00137	4084.	1.20E+12
-301.840	2769.	0.00				
15.9120	0.1757	5673649.	26105.	-0.00136	4115.	1.20E+12
-302.178	2807.	0.00				
16.0480	0.1734	5715849.	25611.	-0.00136	4146.	1.20E+12
-302.502	2846.	0.00				
16.1840	0.1712	5757244.	25117.	-0.00135	4176.	1.20E+12
-302.810	2886.	0.00				
16.3200	0.1690	5797832.	24623.	-0.00134	4205.	1.20E+12
-303.102	2926.	0.00				
16.4560	0.1669	5837613.	24128.	-0.00133	4234.	1.20E+12
-303.380	2967.	0.00				
16.5920	0.1647	5876586.	23633.	-0.00132	4262.	1.20E+12
-303.642	3009.	0.00				
16.7280	0.1625	5914750.	23137.	-0.00132	4290.	1.20E+12
-303.889	3051.	0.00				
16.8640	0.1604	5952105.	22641.	-0.00131	4317.	1.20E+12
-304.120	3094.	0.00				
17.0000	0.1583	5988649.	22144.	-0.00130	4343.	1.20E+12
-304.336	3138.	0.00				
17.1360	0.1562	6024384.	21647.	-0.00129	4369.	1.20E+12
-304.536	3183.	0.00				
17.2720	0.1541	6059307.	21150.	-0.00128	4395.	1.20E+12
-304.720	3228.	0.00				
17.4080	0.1520	6093418.	20653.	-0.00128	4419.	1.20E+12
-304.888	3274.	0.00				
17.5440	0.1499	6126717.	20155.	-0.00127	4444.	1.20E+12

-305.040	3321.	0.00				
17.6800	0.1478	6159204.	19657.	-0.00126	4467.	1.20E+12
-305.177	3369.	0.00				
17.8160	0.1458	6190878.	19159.	-0.00125	4490.	1.20E+12
-305.297	3418.	0.00				
17.9520	0.1437	6221739.	18661.	-0.00124	4513.	1.20E+12
-305.402	3467.	0.00				
18.0880	0.1417	6251787.	18162.	-0.00123	4534.	1.20E+12
-305.490	3518.	0.00				
18.2240	0.1397	6281021.	17664.	-0.00123	4556.	1.20E+12
-305.561	3569.	0.00				
18.3600	0.1377	6309441.	17165.	-0.00122	4576.	1.20E+12
-305.617	3622.	0.00				
18.4960	0.1357	6337047.	16666.	-0.00121	4596.	1.20E+12
-305.656	3675.	0.00				
18.6320	0.1338	6363839.	16167.	-0.00120	4616.	1.20E+12
-305.678	3729.	0.00				
18.7680	0.1318	6389817.	15668.	-0.00119	4634.	1.20E+12
-305.684	3784.	0.00				
18.9040	0.1299	6414981.	15169.	-0.00118	4653.	1.20E+12
-305.674	3841.	0.00				
19.0400	0.1280	6439330.	14671.	-0.00117	4670.	1.20E+12
-305.646	3898.	0.00				
19.1760	0.1261	6462866.	14172.	-0.00116	4687.	1.20E+12
-305.602	3956.	0.00				
19.3120	0.1242	6485587.	13673.	-0.00116	4704.	1.20E+12
-305.540	4016.	0.00				
19.4480	0.1223	6507495.	13175.	-0.00115	4720.	1.20E+12
-305.462	4077.	0.00				
19.5840	0.1204	6528589.	12676.	-0.00114	4735.	1.20E+12
-305.367	4138.	0.00				
19.7200	0.1186	6548870.	12178.	-0.00113	4750.	1.20E+12
-305.254	4201.	0.00				
19.8560	0.1167	6568338.	11680.	-0.00112	4764.	1.20E+12
-305.125	4266.	0.00				
19.9920	0.1149	6586993.	11182.	-0.00111	4777.	1.20E+12
-304.978	4331.	0.00				
20.1280	0.1131	6604836.	10684.	-0.00110	4790.	1.20E+12
-304.813	4398.	0.00				
20.2640	0.1113	6621867.	10187.	-0.00109	4803.	1.20E+12
-304.631	4466.	0.00				
20.4000	0.1095	6638087.	9690.	-0.00108	4815.	1.20E+12
-304.432	4536.	0.00				
20.5360	0.1078	6653495.	9193.	-0.00108	4826.	1.20E+12
-304.215	4607.	0.00				
20.6720	0.1060	6668094.	8697.	-0.00107	4836.	1.20E+12
-303.980	4679.	0.00				
20.8080	0.1043	6681883.	8201.	-0.00106	4846.	1.20E+12
-303.727	4753.	0.00				
20.9440	0.1026	6694863.	7706.	-0.00105	4856.	1.20E+12

-303.456	4828.	0.00				
21.0800	0.1009	6707035.	7211.	-0.00104	4865.	1.20E+12
-303.167	4905.	0.00				
21.2160	0.09919	6718399.	6716.	-0.00103	4873.	1.20E+12
-302.861	4983.	0.00				
21.3520	0.09751	6728957.	6222.	-0.00102	4880.	1.20E+12
-302.536	5063.	0.00				
21.4880	0.09585	6738709.	5729.	-0.00101	4887.	1.20E+12
-302.192	5145.	0.00				
21.6240	0.09421	6747656.	5236.	-0.00100	4894.	1.20E+12
-301.831	5229.	0.00				
21.7600	0.09258	6755799.	4744.	-9.93E-04	4900.	1.20E+12
-301.451	5314.	0.00				
21.8960	0.09097	6763139.	4252.	-9.84E-04	4905.	1.20E+12
-301.052	5401.	0.00				
22.0320	0.08937	6769677.	3761.	-9.75E-04	4910.	1.20E+12
-300.634	5490.	0.00				
22.1680	0.08779	6775415.	3271.	-9.66E-04	4914.	1.20E+12
-300.198	5581.	0.00				
22.3040	0.08622	6780353.	2781.	-9.56E-04	4918.	1.20E+12
-299.743	5674.	0.00				
22.4400	0.08467	6784493.	2292.	-9.47E-04	4921.	1.20E+12
-299.269	5769.	0.00				
22.5760	0.08313	6787836.	1804.	-9.38E-04	4923.	1.20E+12
-298.776	5866.	0.00				
22.7120	0.08160	6790383.	1317.	-9.29E-04	4925.	1.20E+12
-298.264	5965.	0.00				
22.8480	0.08010	6792135.	830.9047	-9.19E-04	4926.	1.20E+12
-297.732	6066.	0.00				
22.9840	0.07860	6793095.	345.4558	-9.10E-04	4927.	1.20E+12
-297.181	6170.	0.00				
23.1200	0.07712	6793263.	-139.078	-9.01E-04	4927.	1.20E+12
-296.610	6276.	0.00				
23.2560	0.07566	6792641.	-622.664	-8.92E-04	4927.	1.20E+12
-296.020	6385.	0.00				
23.3920	0.07421	6791230.	-1105.	-8.83E-04	4926.	1.20E+12
-295.410	6496.	0.00				
23.5280	0.07278	6789033.	-1587.	-8.73E-04	4924.	1.20E+12
-294.780	6610.	0.00				
23.6640	0.07136	6786051.	-2067.	-8.64E-04	4922.	1.20E+12
-294.130	6726.	0.00				
23.8000	0.06996	6782285.	-2547.	-8.55E-04	4919.	1.20E+12
-293.461	6846.	0.00				
23.9360	0.06857	6777738.	-3025.	-8.46E-04	4916.	1.20E+12
-292.770	6968.	0.00				
24.0720	0.06720	6772411.	-3502.	-8.36E-04	4912.	1.20E+12
-292.060	7093.	0.00				
24.2080	0.06584	6766306.	-3979.	-8.27E-04	4908.	1.20E+12
-291.329	7221.	0.00				
24.3440	0.06450	6759425.	-4453.	-8.18E-04	4903.	1.20E+12

-290.577	7352.	0.00				
24.4800	0.06317	6751770.	-4927.	-8.09E-04	4897.	1.20E+12
-289.805	7487.	0.00				
24.6160	0.06186	6743343.	-5399.	-8.00E-04	4891.	1.20E+12
-289.011	7625.	0.00				
24.7520	0.06056	6734147.	-5870.	-7.90E-04	4884.	1.20E+12
-288.197	7766.	0.00				
24.8880	0.05928	6724183.	-6340.	-7.81E-04	4877.	1.20E+12
-287.361	7911.	0.00				
25.0240	0.05801	6713453.	-6808.	-7.72E-04	4869.	1.20E+12
-286.504	8060.	0.00				
25.1600	0.05676	6701961.	-7275.	-7.63E-04	4861.	1.20E+12
-285.625	8212.	0.00				
25.2960	0.05552	6689707.	-7740.	-7.54E-04	4852.	1.20E+12
-284.725	8369.	0.00				
25.4320	0.05430	6676696.	-8204.	-7.45E-04	4843.	1.20E+12
-283.803	8530.	0.00				
25.5680	0.05309	6662928.	-8667.	-7.36E-04	4833.	1.20E+12
-282.858	8695.	0.00				
25.7040	0.05190	6648407.	-9128.	-7.27E-04	4822.	1.20E+12
-281.892	8864.	0.00				
25.8400	0.05072	6633136.	-9587.	-7.18E-04	4811.	1.20E+12
-280.903	9038.	0.00				
25.9760	0.04956	6617116.	-10044.	-7.09E-04	4799.	1.20E+12
-279.891	9217.	0.00				
26.1120	0.04841	6600351.	-10500.	-7.00E-04	4787.	1.20E+12
-278.857	9401.	0.00				
26.2480	0.04727	6582843.	-10955.	-6.91E-04	4774.	1.20E+12
-277.800	9590.	0.00				
26.3840	0.04615	6564595.	-11407.	-6.82E-04	4761.	1.20E+12
-276.719	9785.	0.00				
26.5200	0.04505	6545610.	-11858.	-6.73E-04	4747.	1.20E+12
-275.615	9985.	0.00				
26.6560	0.04396	6525891.	-12307.	-6.64E-04	4733.	1.20E+12
-274.487	10191.	0.00				
26.7920	0.04288	6505441.	-12754.	-6.55E-04	4718.	1.20E+12
-273.336	10403.	0.00				
26.9280	0.04182	6484263.	-13199.	-6.46E-04	4703.	1.20E+12
-272.160	10621.	0.00				
27.0640	0.04077	6462360.	-13642.	-6.37E-04	4687.	1.20E+12
-270.960	10846.	0.00				
27.2000	0.03974	6439735.	-14083.	-6.29E-04	4671.	1.20E+12
-269.735	11077.	0.00				
27.3360	0.03872	6416392.	-14522.	-6.20E-04	4654.	1.20E+12
-268.485	11316.	0.00				
27.4720	0.03772	6392334.	-14960.	-6.11E-04	4636.	1.20E+12
-267.209	11562.	0.00				
27.6080	0.03673	6367564.	-15395.	-6.02E-04	4618.	1.20E+12
-265.909	11816.	0.00				
27.7440	0.03575	6342086.	-15827.	-5.94E-04	4600.	1.20E+12

-264.582	12078.	0.00				
27.8800	0.03479	6315903.	-16258.	-5.85E-04	4581.	1.20E+12
-263.229	12349.	0.00				
28.0160	0.03384	6289019.	-16687.	-5.77E-04	4561.	1.20E+12
-261.849	12628.	0.00				
28.1520	0.03291	6261438.	-17113.	-5.68E-04	4541.	1.20E+12
-260.443	12917.	0.00				
28.2880	0.03199	6233163.	-17537.	-5.60E-04	4521.	1.20E+12
-259.009	13216.	0.00				
28.4240	0.03108	6204198.	-17958.	-5.51E-04	4500.	1.20E+12
-257.547	13524.	0.00				
28.5600	0.03019	6174548.	-18377.	-5.43E-04	4478.	1.20E+12
-256.058	13844.	0.00				
28.6960	0.02931	6144215.	-18794.	-5.34E-04	4456.	1.20E+12
-254.539	14174.	0.00				
28.8320	0.02844	6113204.	-19208.	-5.26E-04	4434.	1.20E+12
-252.992	14517.	0.00				
28.9680	0.02759	6081520.	-19620.	-5.18E-04	4411.	1.20E+12
-251.414	14871.	0.00				
29.1040	0.02675	6049166.	-20029.	-5.09E-04	4387.	1.20E+12
-249.807	15239.	0.00				
29.2400	0.02593	6016146.	-20435.	-5.01E-04	4363.	1.20E+12
-248.169	15621.	0.00				
29.3760	0.02512	5982466.	-20839.	-4.93E-04	4339.	1.20E+12
-246.500	16017.	0.00				
29.5120	0.02432	5948129.	-21240.	-4.85E-04	4314.	1.20E+12
-244.798	16429.	0.00				
29.6480	0.02353	5913140.	-21638.	-4.77E-04	4289.	1.20E+12
-243.065	16856.	0.00				
29.7840	0.02276	5877503.	-22033.	-4.69E-04	4263.	1.20E+12
-241.297	17301.	0.00				
29.9200	0.02200	5841224.	-22425.	-4.61E-04	4237.	1.20E+12
-239.496	17764.	0.00				
30.0560	0.02126	5804307.	-22815.	-4.53E-04	4210.	1.20E+12
-237.660	18247.	0.00				
30.1920	0.02052	5766757.	-23201.	-4.45E-04	4183.	1.20E+12
-235.788	18749.	0.00				
30.3280	0.01980	5728580.	-23584.	-4.37E-04	4155.	1.20E+12
-233.880	19274.	0.00				
30.4640	0.01910	5689779.	-23964.	-4.30E-04	4127.	1.20E+12
-231.934	19821.	0.00				
30.6000	0.01840	5650360.	-24341.	-4.22E-04	4098.	1.20E+12
-229.949	20394.	0.00				
30.7360	0.01772	5610329.	-24715.	-4.14E-04	4069.	1.20E+12
-227.925	20992.	0.00				
30.8720	0.01705	5569691.	-25085.	-4.07E-04	4040.	1.20E+12
-225.860	21619.	0.00				
31.0080	0.01639	5528451.	-25452.	-3.99E-04	4010.	1.20E+12
-223.752	22276.	0.00				
31.1440	0.01575	5486616.	-25815.	-3.92E-04	3979.	1.20E+12

-221.600	22966.	0.00				
31.2800	0.01511	5444190.	-26175.	-3.84E-04	3949.	1.20E+12
-219.404	23690.	0.00				
31.4160	0.01449	5401180.	-26531.	-3.77E-04	3917.	1.20E+12
-217.160	24452.	0.00				
31.5520	0.01389	5357591.	-26884.	-3.69E-04	3886.	1.20E+12
-214.868	25255.	0.00				
31.6880	0.01329	5313430.	-27233.	-3.62E-04	3854.	1.20E+12
-212.525	26102.	0.00				
31.8240	0.01270	5268703.	-27578.	-3.55E-04	3821.	1.20E+12
-210.129	26996.	0.00				
31.9600	0.01213	5223417.	-27919.	-3.48E-04	3788.	1.20E+12
-207.678	27942.	0.00				
32.0960	0.01157	5177577.	-28255.	-3.41E-04	3755.	1.20E+12
-205.170	28946.	0.00				
32.2320	0.01102	5131191.	-28588.	-3.34E-04	3722.	1.20E+12
-202.601	30011.	0.00				
32.3680	0.01048	5084265.	-28917.	-3.27E-04	3688.	1.20E+12
-199.968	31144.	0.00				
32.5040	0.00995	5036807.	-29241.	-3.20E-04	3653.	1.20E+12
-197.268	32353.	0.00				
32.6400	0.00943	4988823.	-29561.	-3.13E-04	3618.	1.20E+12
-194.498	33645.	0.00				
32.7760	0.00893	4940321.	-29876.	-3.06E-04	3583.	1.20E+12
-191.652	35029.	0.00				
32.9120	0.00843	4891309.	-30186.	-3.00E-04	3548.	1.20E+12
-188.726	36516.	0.00				
33.0480	0.00795	4841794.	-30492.	-2.93E-04	3512.	1.20E+12
-185.715	38119.	0.00				
33.1840	0.00748	4791785.	-30792.	-2.86E-04	3475.	1.20E+12
-182.613	39852.	0.00				
33.3200	0.00702	4741289.	-31088.	-2.80E-04	3439.	1.20E+12
-179.412	41732.	0.00				
33.4560	0.00656	4690315.	-31378.	-2.74E-04	3402.	1.20E+12
-176.105	43781.	0.00				
33.5920	0.00612	4638872.	-31662.	-2.67E-04	3365.	1.20E+12
-172.682	46024.	0.00				
33.7280	0.00569	4586969.	-31941.	-2.61E-04	3327.	1.20E+12
-169.133	48490.	0.00				
33.8640	0.00527	4534616.	-32214.	-2.55E-04	3289.	1.20E+12
-165.446	51219.	0.00				
34.0000	0.00486	4481822.	-32481.	-2.49E-04	3251.	1.20E+12
-161.605	54256.	0.00				
34.1360	0.00446	4428598.	-32742.	-2.43E-04	3212.	1.20E+12
-157.593	57663.	0.00				
34.2720	0.00407	4374954.	-32995.	-2.37E-04	3173.	1.20E+12
-153.389	61516.	0.00				
34.4080	0.00369	4320901.	-33242.	-2.31E-04	3134.	1.20E+12
-148.967	65916.	0.00				
34.5440	0.00332	4266452.	-33481.	-2.25E-04	3094.	1.20E+12

-144.295	71002.	0.00				
34.6800	0.00295	4211618.	-33713.	-2.19E-04	3055.	1.20E+12
-139.331	76962.	0.00				
34.8160	0.00260	4156414.	-33936.	-2.13E-04	3015.	1.20E+12
-134.022	84066.	0.00				
34.9520	0.00226	4100852.	-34150.	-2.08E-04	2974.	1.20E+12
-128.296	92716.	0.00				
35.0880	0.00192	4044948.	-34354.	-2.02E-04	2934.	1.20E+12
-122.054	103539.	0.00				
35.2240	0.00160	3988720.	-34548.	-1.97E-04	2893.	1.20E+12
-115.154	117574.	0.00				
35.3600	0.00128	3932185.	-34729.	-1.91E-04	2852.	1.20E+12
-107.375	136707.	0.00				
35.4960	9.74E-04	3875364.	-34897.	-1.86E-04	2811.	1.20E+12
-98.347	164791.	0.00				
35.6320	6.75E-04	3818280.	-35049.	-1.81E-04	2769.	1.20E+12
-87.367	211319.	0.00				
35.7680	3.84E-04	3760965.	-35179.	-1.76E-04	2728.	1.20E+12
-72.745	309198.	0.00				
35.9040	1.02E-04	3703455.	-35277.	-1.71E-04	2686.	1.20E+12
-47.266	759668.	0.00				
36.0400	-1.73E-04	3645820.	-35271.	-1.66E-04	2644.	1.20E+12
55.5526	525107.	0.00				
36.1760	-4.39E-04	3588332.	-35163.	-1.61E-04	2603.	1.20E+12
76.3851	284123.	0.00				
36.3120	-6.97E-04	3531048.	-35027.	-1.56E-04	2561.	1.20E+12
89.5155	209630.	0.00				
36.4480	-9.47E-04	3474002.	-34873.	-1.51E-04	2520.	1.20E+12
99.3422	171167.	0.00				
36.5840	-0.00119	3417221.	-34705.	-1.46E-04	2478.	1.20E+12
107.3436	147243.	0.00				
36.7200	-0.00142	3360726.	-34524.	-1.42E-04	2437.	1.20E+12
114.1465	130750.	0.00				
36.8560	-0.00165	3304535.	-34333.	-1.37E-04	2397.	1.20E+12
120.0830	118608.	0.00				
36.9920	-0.00187	3248664.	-34133.	-1.33E-04	2356.	1.20E+12
125.3571	109257.	0.00				
37.1280	-0.00209	3193126.	-33924.	-1.28E-04	2316.	1.20E+12
130.1042	101814.	0.00				
37.2640	-0.00229	3137935.	-33708.	-1.24E-04	2276.	1.20E+12
134.4195	95739.	0.00				
37.4000	-0.00249	3083103.	-33486.	-1.20E-04	2236.	1.20E+12
138.3726	90682.	0.00				
37.5360	-0.00268	3028638.	-33257.	-1.16E-04	2197.	1.20E+12
142.0164	86405.	0.00				
37.6720	-0.00287	2974552.	-33022.	-1.12E-04	2157.	1.20E+12
145.3920	82741.	0.00				
37.8080	-0.00305	2920853.	-32782.	-1.08E-04	2118.	1.20E+12
148.5322	79569.	0.00				
37.9440	-0.00322	2867550.	-32538.	-1.04E-04	2080.	1.20E+12

151.4635	76796.	0.00				
38.0800	-0.00338	2814650.	-32288.	-9.97E-05	2041.	1.20E+12
154.2078	74355.	0.00				
38.2160	-0.00354	2762161.	-32035.	-9.59E-05	2003.	1.20E+12
156.7833	72192.	0.00				
38.3520	-0.00370	2710090.	-31777.	-9.22E-05	1966.	1.20E+12
159.2054	70264.	0.00				
38.4880	-0.00385	2658442.	-31515.	-8.86E-05	1928.	1.20E+12
161.4873	68537.	0.00				
38.6240	-0.00399	2607225.	-31250.	-8.50E-05	1891.	1.20E+12
163.6404	66984.	0.00				
38.7600	-0.00412	2556443.	-30981.	-8.15E-05	1854.	1.20E+12
165.6745	65583.	0.00				
38.8960	-0.00425	2506103.	-30709.	-7.80E-05	1818.	1.20E+12
167.5983	64314.	0.00				
39.0320	-0.00438	2456209.	-30434.	-7.47E-05	1781.	1.20E+12
169.4194	63163.	0.00				
39.1680	-0.00450	2406766.	-30156.	-7.14E-05	1746.	1.20E+12
171.1445	62116.	0.00				
39.3040	-0.00461	2357780.	-29875.	-6.81E-05	1710.	1.20E+12
172.7796	61162.	0.00				
39.4400	-0.00472	2309253.	-29592.	-6.49E-05	1675.	1.20E+12
174.3302	60291.	0.00				
39.5760	-0.00482	2261191.	-29307.	-6.18E-05	1640.	1.20E+12
175.8010	59496.	0.00				
39.7120	-0.00492	2213597.	-29018.	-5.88E-05	1605.	1.20E+12
177.1965	58769.	0.00				
39.8480	-0.00501	2166474.	-28728.	-5.58E-05	1571.	1.20E+12
178.5206	58105.	0.00				
39.9840	-0.00510	2119828.	-28436.	-5.29E-05	1537.	1.20E+12
179.7770	57497.	0.00				
40.1200	-0.00519	2073660.	-28141.	-5.00E-05	1504.	1.20E+12
180.9690	56941.	0.00				
40.2560	-0.00527	2027974.	-27845.	-4.72E-05	1471.	1.20E+12
182.0996	56434.	0.00				
40.3920	-0.00534	1982773.	-27547.	-4.45E-05	1438.	1.20E+12
183.1717	55970.	0.00				
40.5280	-0.00541	1938060.	-27247.	-4.18E-05	1406.	1.20E+12
184.1878	55548.	0.00				
40.6640	-0.00548	1893838.	-26946.	-3.92E-05	1374.	1.20E+12
185.1503	55164.	0.00				
40.8000	-0.00554	1850109.	-26643.	-3.67E-05	1342.	1.20E+12
186.0615	54816.	0.00				
40.9360	-0.00560	1806875.	-26339.	-3.42E-05	1311.	1.20E+12
186.9233	54501.	0.00				
41.0720	-0.00565	1764139.	-26033.	-3.18E-05	1280.	1.20E+12
187.7377	54217.	0.00				
41.2080	-0.00570	1721903.	-25726.	-2.94E-05	1249.	1.20E+12
188.5066	53962.	0.00				
41.3440	-0.00575	1680169.	-25418.	-2.71E-05	1219.	1.20E+12

189.2315	53735.	0.00				
41.4800	-0.00579	1638940.	-25108.	-2.48E-05	1189.	1.20E+12
189.9141	53535.	0.00				
41.6160	-0.00583	1598216.	-24798.	-2.26E-05	1159.	1.20E+12
190.5558	53359.	0.00				
41.7520	-0.00586	1557999.	-24486.	-2.05E-05	1130.	1.20E+12
191.1580	53206.	0.00				
41.8880	-0.00590	1518292.	-24174.	-1.84E-05	1101.	1.20E+12
191.7221	53076.	0.00				
42.0240	-0.00592	1479095.	-23861.	-1.64E-05	1073.	1.20E+12
192.2493	52968.	0.00				
42.1600	-0.00595	1440411.	-23547.	-1.44E-05	1045.	1.20E+12
192.7407	52879.	0.00				
42.2960	-0.00597	1402240.	-23232.	-1.24E-05	1017.	1.20E+12
193.1975	52811.	0.00				
42.4320	-0.00599	1364583.	-22916.	-1.06E-05	989.7140	1.20E+12
193.6206	52761.	0.00				
42.5680	-0.00600	1327442.	-22600.	-8.72E-06	962.7761	1.20E+12
194.0112	52729.	0.00				
42.7040	-0.00602	1290818.	-22283.	-6.94E-06	936.2131	1.20E+12
194.3701	52714.	0.00				
42.8400	-0.00603	1254711.	-21965.	-5.21E-06	910.0255	1.20E+12
194.6983	52717.	0.00				
42.9760	-0.00603	1219123.	-21647.	-3.53E-06	884.2140	1.20E+12
194.9966	52735.	0.00				
43.1120	-0.00604	1184054.	-21329.	-1.89E-06	858.7791	1.20E+12
195.2658	52770.	0.00				
43.2480	-0.00604	1149506.	-21010.	-3.06E-07	833.7215	1.20E+12
195.5067	52819.	0.00				
43.3840	-0.00604	1115478.	-20691.	1.24E-06	809.0416	1.20E+12
195.7201	52884.	0.00				
43.5200	-0.00604	1081972.	-20371.	2.73E-06	784.7397	1.20E+12
195.9067	52963.	0.00				
43.6560	-0.00603	1048987.	-20051.	4.18E-06	760.8163	1.20E+12
196.0672	53056.	0.00				
43.7920	-0.00602	1016524.	-19731.	5.58E-06	737.2716	1.20E+12
196.2021	53163.	0.00				
43.9280	-0.00601	984584.	-19411.	6.95E-06	714.1060	1.20E+12
196.3123	53283.	0.00				
44.0640	-0.00600	953167.	-19090.	8.26E-06	691.3196	1.20E+12
196.3982	53417.	0.00				
44.2000	-0.00599	922273.	-18770.	9.54E-06	668.9125	1.20E+12
196.4605	53564.	0.00				
44.3360	-0.00597	891902.	-18449.	1.08E-05	646.8850	1.20E+12
196.4996	53723.	0.00				
44.4720	-0.00595	862055.	-18129.	1.20E-05	625.2371	1.20E+12
196.5163	53895.	0.00				
44.6080	-0.00593	832731.	-17808.	1.31E-05	603.9687	1.20E+12
196.5109	54080.	0.00				
44.7440	-0.00591	803930.	-17487.	1.42E-05	583.0800	1.20E+12

196.4839	54277.	0.00				
44.8800	-0.00588	775653.	-17166.	1.53E-05	562.5709	1.20E+12
196.4359	54486.	0.00				
45.0160	-0.00586	747899.	-16846.	1.63E-05	542.4412	1.20E+12
196.3674	54708.	0.00				
45.1520	-0.00583	720668.	-16526.	1.73E-05	522.6908	1.20E+12
196.2787	54941.	0.00				
45.2880	-0.00580	693959.	-16205.	1.83E-05	503.3196	1.20E+12
196.1703	55186.	0.00				
45.4240	-0.00577	667774.	-15885.	1.92E-05	484.3274	1.20E+12
196.0426	55443.	0.00				
45.5600	-0.00574	642110.	-15565.	2.01E-05	465.7139	1.20E+12
195.8961	55712.	0.00				
45.6960	-0.00570	616968.	-15246.	2.10E-05	447.4787	1.20E+12
195.7311	55992.	0.00				
45.8320	-0.00567	592347.	-14927.	2.18E-05	429.6217	1.20E+12
195.5479	56284.	0.00				
45.9680	-0.00563	568248.	-14608.	2.26E-05	412.1425	1.20E+12
195.3471	56588.	0.00				
46.1040	-0.00560	544668.	-14289.	2.33E-05	395.0406	1.20E+12
195.1288	56904.	0.00				
46.2400	-0.00556	521608.	-13971.	2.41E-05	378.3156	1.20E+12
194.8935	57231.	0.00				
46.3760	-0.00552	499068.	-13653.	2.48E-05	361.9671	1.20E+12
194.6414	57570.	0.00				
46.5120	-0.00548	477045.	-13335.	2.54E-05	345.9946	1.20E+12
194.3730	57920.	0.00				
46.6480	-0.00543	455541.	-13018.	2.61E-05	330.3976	1.20E+12
194.0885	58283.	0.00				
46.7840	-0.00539	434553.	-12702.	2.67E-05	315.1756	1.20E+12
193.7881	58657.	0.00				
46.9200	-0.00535	414081.	-12386.	2.72E-05	300.3278	1.20E+12
193.4723	59044.	0.00				
47.0560	-0.00530	394125.	-12070.	2.78E-05	285.8538	1.20E+12
193.1412	59442.	0.00				
47.1920	-0.00526	374683.	-11756.	2.83E-05	271.7530	1.20E+12
192.7951	59853.	0.00				
47.3280	-0.00521	355755.	-11441.	2.88E-05	258.0245	1.20E+12
192.4343	60275.	0.00				
47.4640	-0.00516	337339.	-11127.	2.93E-05	244.6678	1.20E+12
192.0590	60710.	0.00				
47.6000	-0.00511	319435.	-10814.	2.97E-05	231.6821	1.20E+12
191.6695	61158.	0.00				
47.7360	-0.00507	302041.	-10502.	3.02E-05	219.0666	1.20E+12
191.2659	61618.	0.00				
47.8720	-0.00502	285157.	-10190.	3.06E-05	206.8207	1.20E+12
190.8486	62091.	0.00				
48.0080	-0.00497	268781.	-9922.	3.09E-05	194.9433	1.20E+12
137.3250	45129.	0.00				
48.1440	-0.00492	252771.	-9699.	3.13E-05	183.3313	1.20E+12

136.3058	45257.	0.00				
48.2800	-0.00486	237124.	-9477.	3.16E-05	171.9826	1.20E+12
135.2629	45385.	0.00				
48.4160	-0.00481	221837.	-9258.	3.19E-05	160.8952	1.20E+12
134.1973	45513.	0.00				
48.5520	-0.00476	206907.	-9039.	3.22E-05	150.0670	1.20E+12
133.1099	45640.	0.00				
48.6880	-0.00471	192332.	-8823.	3.25E-05	139.4959	1.20E+12
132.0013	45768.	0.00				
48.8240	-0.00465	178109.	-8609.	3.28E-05	129.1799	1.20E+12
130.8725	45896.	0.00				
48.9600	-0.00460	164234.	-8396.	3.30E-05	119.1166	1.20E+12
129.7241	46024.	0.00				
49.0960	-0.00455	150704.	-8185.	3.32E-05	109.3040	1.20E+12
128.5571	46152.	0.00				
49.2320	-0.00449	137518.	-7976.	3.34E-05	99.7396	1.20E+12
127.3721	46280.	0.00				
49.3680	-0.00444	124670.	-7769.	3.36E-05	90.4214	1.20E+12
126.1698	46407.	0.00				
49.5040	-0.00438	112158.	-7564.	3.37E-05	81.3468	1.20E+12
124.9512	46535.	0.00				
49.6400	-0.00433	99979.	-7362.	3.39E-05	72.5137	1.20E+12
123.7168	46663.	0.00				
49.7760	-0.00427	88130.	-7161.	3.40E-05	63.9195	1.20E+12
122.4674	46791.	0.00				
49.9120	-0.00422	76607.	-6962.	3.41E-05	55.5619	1.20E+12
121.2037	46919.	0.00				
50.0480	-0.00416	65406.	-6765.	3.42E-05	47.4384	1.20E+12
119.9264	47047.	0.00				
50.1840	-0.00410	54526.	-6570.	3.43E-05	39.5466	1.20E+12
118.6361	47175.	0.00				
50.3200	-0.00405	43961.	-6378.	3.44E-05	31.8840	1.20E+12
117.3336	47302.	0.00				
50.4560	-0.00399	33708.	-6187.	3.44E-05	24.4480	1.20E+12
116.0195	47430.	0.00				
50.5920	-0.00394	23765.	-5999.	3.45E-05	17.2362	1.20E+12
114.6944	47558.	0.00				
50.7280	-0.00388	14127.	-5813.	3.45E-05	10.2459	1.20E+12
113.3589	47686.	0.00				
50.8640	-0.00382	4791.	-5629.	3.45E-05	3.4746	1.20E+12
112.0138	47814.	0.00				
51.0000	-0.00377	-4247.	-5448.	3.45E-05	3.0803	1.20E+12
110.6594	47942.	0.00				
51.1360	-0.00371	-12990.	-5268.	3.45E-05	9.4215	1.20E+12
109.2966	48069.	0.00				
51.2720	-0.00365	-21442.	-5091.	3.45E-05	15.5515	1.20E+12
107.9257	48197.	0.00				
51.4080	-0.00360	-29606.	-4916.	3.44E-05	21.4730	1.20E+12
106.5475	48325.	0.00				
51.5440	-0.00354	-37487.	-4743.	3.44E-05	27.1887	1.20E+12

105.1624	48453.	0.00				
51.6800	-0.00349	-45087.	-4573.	3.43E-05	32.7013	1.20E+12
103.7710	48581.	0.00				
51.8160	-0.00343	-52412.	-4404.	3.43E-05	38.0134	1.20E+12
102.3738	48709.	0.00				
51.9520	-0.00337	-59463.	-4238.	3.42E-05	43.1277	1.20E+12
100.9713	48837.	0.00				
52.0880	-0.00332	-66246.	-4075.	3.41E-05	48.0470	1.20E+12
99.5641	48964.	0.00				
52.2240	-0.00326	-72763.	-3913.	3.40E-05	52.7740	1.20E+12
98.1525	49092.	0.00				
52.3600	-0.00321	-79019.	-3754.	3.39E-05	57.3114	1.20E+12
96.7371	49220.	0.00				
52.4960	-0.00315	-85017.	-3598.	3.38E-05	61.6618	1.20E+12
95.3183	49348.	0.00				
52.6320	-0.00310	-90762.	-3443.	3.37E-05	65.8282	1.20E+12
93.8966	49476.	0.00				
52.7680	-0.00304	-96256.	-3291.	3.35E-05	69.8132	1.20E+12
92.4723	49604.	0.00				
52.9040	-0.00299	-101504.	-3141.	3.34E-05	73.6195	1.20E+12
91.0460	49731.	0.00				
53.0400	-0.00293	-106510.	-2994.	3.33E-05	77.2500	1.20E+12
89.6181	49859.	0.00				
53.1760	-0.00288	-111276.	-2849.	3.31E-05	80.7073	1.20E+12
88.1888	49987.	0.00				
53.3120	-0.00283	-115808.	-2706.	3.30E-05	83.9943	1.20E+12
86.7587	50115.	0.00				
53.4480	-0.00277	-120109.	-2566.	3.28E-05	87.1137	1.20E+12
85.3280	50243.	0.00				
53.5840	-0.00272	-124183.	-2428.	3.26E-05	90.0682	1.20E+12
83.8971	50371.	0.00				
53.7200	-0.00267	-128033.	-2292.	3.25E-05	92.8607	1.20E+12
82.4664	50499.	0.00				
53.8560	-0.00261	-131664.	-2158.	3.23E-05	95.4939	1.20E+12
81.0362	50626.	0.00				
53.9920	-0.00256	-135078.	-2027.	3.21E-05	97.9705	1.20E+12
79.6068	50754.	0.00				
54.1280	-0.00251	-138281.	-1899.	3.19E-05	100.2934	1.20E+12
78.1786	50882.	0.00				
54.2640	-0.00246	-141275.	-1772.	3.17E-05	102.4652	1.20E+12
76.7517	51010.	0.00				
54.4000	-0.00240	-144065.	-1648.	3.15E-05	104.4888	1.20E+12
75.3266	51138.	0.00				
54.5360	-0.00235	-146655.	-1526.	3.13E-05	106.3669	1.20E+12
73.9034	51266.	0.00				
54.6720	-0.00230	-149047.	-1407.	3.11E-05	108.1022	1.20E+12
72.4824	51393.	0.00				
54.8080	-0.00225	-151247.	-1290.	3.09E-05	109.6974	1.20E+12
71.0639	51521.	0.00				
54.9440	-0.00220	-153257.	-1175.	3.07E-05	111.1554	1.20E+12

69.6480	51649.	0.00				
55.0800	-0.00215	-155082.	-1062.	3.05E-05	112.4789	1.20E+12
68.2351	51777.	0.00				
55.2160	-0.00210	-156725.	-952.213	3.03E-05	113.6706	1.20E+12
66.8253	51905.	0.00				
55.3520	-0.00205	-158190.	-844.302	3.01E-05	114.7331	1.20E+12
65.4188	52033.	0.00				
55.4880	-0.00200	-159481.	-738.683	2.99E-05	115.6693	1.20E+12
64.0159	52160.	0.00				
55.6240	-0.00195	-160601.	-635.351	2.97E-05	116.4818	1.20E+12
62.6166	52288.	0.00				
55.7600	-0.00191	-161555.	-534.299	2.94E-05	117.1734	1.20E+12
61.2211	52416.	0.00				
55.8960	-0.00186	-162345.	-435.522	2.92E-05	117.7467	1.20E+12
59.8297	52544.	0.00				
56.0320	-0.00181	-162976.	-339.012	2.90E-05	118.2044	1.20E+12
58.4424	52672.	0.00				
56.1680	-0.00176	-163452.	-244.763	2.88E-05	118.5492	1.20E+12
57.0593	52800.	0.00				
56.3040	-0.00172	-163775.	-152.767	2.85E-05	118.7839	1.20E+12
55.6806	52928.	0.00				
56.4400	-0.00167	-163950.	-63.017	2.83E-05	118.9109	1.20E+12
54.3065	53055.	0.00				
56.5760	-0.00162	-163981.	24.4932	2.81E-05	118.9330	1.20E+12
52.9369	53183.	0.00				
56.7120	-0.00158	-163870.	109.7724	2.79E-05	118.8529	1.20E+12
51.5720	53311.	0.00				
56.8480	-0.00153	-163622.	192.8280	2.77E-05	118.6732	1.20E+12
50.2118	53439.	0.00				
56.9840	-0.00149	-163241.	273.6678	2.74E-05	118.3964	1.20E+12
48.8565	53567.	0.00				
57.1200	-0.00144	-162729.	352.2996	2.72E-05	118.0253	1.20E+12
47.5061	53695.	0.00				
57.2560	-0.00140	-162091.	428.7316	2.70E-05	117.5624	1.20E+12
46.1606	53822.	0.00				
57.3920	-0.00136	-161330.	502.9717	2.68E-05	117.0104	1.20E+12
44.8200	53950.	0.00				
57.5280	-0.00131	-160449.	575.0282	2.66E-05	116.3717	1.20E+12
43.4845	54078.	0.00				
57.6640	-0.00127	-159453.	644.9092	2.63E-05	115.6491	1.20E+12
42.1539	54206.	0.00				
57.8000	-0.00123	-158344.	712.6228	2.61E-05	114.8450	1.20E+12
40.8284	54334.	0.00				
57.9360	-0.00118	-157127.	778.1773	2.59E-05	113.9620	1.20E+12
39.5080	54462.	0.00				
58.0720	-0.00114	-155804.	841.5808	2.57E-05	113.0028	1.20E+12
38.1925	54590.	0.00				
58.2080	-0.00110	-154380.	902.8417	2.55E-05	111.9697	1.20E+12
36.8820	54717.	0.00				
58.3440	-0.00106	-152857.	961.9679	2.53E-05	110.8655	1.20E+12

35.5766	54845.	0.00				
58.4800	-0.00102	-151240.	1019.	2.51E-05	109.6924	1.20E+12
34.2760	54973.	0.00				
58.6160	-9.77E-04	-149531.	1074.	2.49E-05	108.4532	1.20E+12
32.9804	55101.	0.00				
58.7520	-9.36E-04	-147735.	1127.	2.47E-05	107.1503	1.20E+12
31.6896	55229.	0.00				
58.8880	-8.96E-04	-145854.	1177.	2.45E-05	105.7861	1.20E+12
30.4036	55357.	0.00				
59.0240	-8.57E-04	-143892.	1226.	2.43E-05	104.3632	1.20E+12
29.1224	55484.	0.00				
59.1600	-8.17E-04	-141853.	1272.	2.41E-05	102.8841	1.20E+12
27.8458	55612.	0.00				
59.2960	-7.78E-04	-139739.	1317.	2.39E-05	101.3512	1.20E+12
26.5738	55740.	0.00				
59.4320	-7.39E-04	-137555.	1359.	2.37E-05	99.7669	1.20E+12
25.3062	55868.	0.00				
59.5680	-7.01E-04	-135303.	1399.	2.35E-05	98.1338	1.20E+12
24.0431	55996.	0.00				
59.7040	-6.63E-04	-132988.	1438.	2.33E-05	96.4542	1.20E+12
22.7843	56124.	0.00				
59.8400	-6.25E-04	-130611.	1474.	2.31E-05	94.7305	1.20E+12
21.5297	56252.	0.00				
59.9760	-5.87E-04	-128177.	1508.	2.30E-05	92.9653	1.20E+12
20.2791	56379.	0.00				
60.1120	-5.50E-04	-125690.	1540.	2.28E-05	91.1610	1.20E+12
19.0325	56507.	0.00				
60.2480	-5.13E-04	-123151.	1570.	2.26E-05	89.3198	1.20E+12
17.7898	56635.	0.00				
60.3840	-4.76E-04	-120565.	1598.	2.25E-05	87.4443	1.20E+12
16.5507	56763.	0.00				
60.5200	-4.39E-04	-117935.	1624.	2.23E-05	85.5369	1.20E+12
15.3152	56891.	0.00				
60.6560	-4.03E-04	-115264.	1648.	2.21E-05	83.5998	1.20E+12
14.0832	57019.	0.00				
60.7920	-3.67E-04	-112556.	1670.	2.20E-05	81.6355	1.20E+12
12.8544	57146.	0.00				
60.9280	-3.31E-04	-109814.	1690.	2.18E-05	79.6464	1.20E+12
11.6288	57274.	0.00				
61.0640	-2.96E-04	-107040.	1708.	2.17E-05	77.6349	1.20E+12
10.4061	57402.	0.00				
61.2000	-2.61E-04	-104239.	1724.	2.15E-05	75.6032	1.20E+12
9.1862	57530.	0.00				
61.3360	-2.26E-04	-101413.	1738.	2.14E-05	73.5538	1.20E+12
7.9690	57658.	0.00				
61.4720	-1.91E-04	-98567.	1750.	2.13E-05	71.4890	1.20E+12
6.7543	57786.	0.00				
61.6080	-1.56E-04	-95702.	1760.	2.11E-05	69.4111	1.20E+12
5.5419	57913.	0.00				
61.7440	-1.22E-04	-92822.	1768.	2.10E-05	67.3226	1.20E+12

4.3317	58041.	0.00				
61.8800	-8.76E-05	-89931.	1774.	2.09E-05	65.2257	1.20E+12
3.1234	58169.	0.00				
62.0160	-5.37E-05	-87031.	1778.	2.08E-05	63.1227	1.20E+12
1.9168	58297.	0.00				
62.1520	-1.99E-05	-84127.	1780.	2.06E-05	61.0160	1.20E+12
0.7119	58425.	0.00				
62.2880	1.37E-05	-81220.	1781.	2.05E-05	58.9080	1.20E+12
-0.492	58553.	0.00				
62.4240	4.71E-05	-78315.	1779.	2.04E-05	56.8009	1.20E+12
-1.694	58681.	0.00				
62.5600	8.03E-05	-75414.	1775.	2.03E-05	54.6971	1.20E+12
-2.895	58808.	0.00				
62.6960	1.13E-04	-72521.	1769.	2.02E-05	52.5989	1.20E+12
-4.096	58936.	0.00				
62.8320	1.46E-04	-69639.	1762.	2.01E-05	50.5086	1.20E+12
-5.295	59064.	0.00				
62.9680	1.79E-04	-66771.	1752.	2.00E-05	48.4285	1.20E+12
-6.495	59192.	0.00				
63.1040	2.12E-04	-63921.	1740.	1.99E-05	46.3609	1.20E+12
-7.694	59320.	0.00				
63.2400	2.44E-04	-61091.	1727.	1.98E-05	44.3083	1.20E+12
-8.893	59448.	0.00				
63.3760	2.76E-04	-58284.	1711.	1.98E-05	42.2728	1.20E+12
-10.092	59575.	0.00				
63.5120	3.09E-04	-55505.	1694.	1.97E-05	40.2568	1.20E+12
-11.291	59703.	0.00				
63.6480	3.41E-04	-52755.	1675.	1.96E-05	38.2626	1.20E+12
-12.491	59831.	0.00				
63.7840	3.73E-04	-50039.	1653.	1.95E-05	36.2925	1.20E+12
-13.692	59959.	0.00				
63.9200	4.05E-04	-47359.	1630.	1.95E-05	34.3489	1.20E+12
-14.894	60087.	0.00				
64.0560	4.36E-04	-44719.	1605.	1.94E-05	32.4341	1.20E+12
-16.096	60215.	0.00				
64.1920	4.68E-04	-42122.	1577.	1.94E-05	30.5504	1.20E+12
-17.301	60343.	0.00				
64.3280	4.99E-04	-39571.	1548.	1.93E-05	28.7000	1.20E+12
-18.506	60470.	0.00				
64.4640	5.31E-04	-37069.	1517.	1.93E-05	26.8855	1.20E+12
-19.713	60598.	0.00				
64.6000	5.62E-04	-34619.	1484.	1.92E-05	25.1090	1.20E+12
-20.922	60726.	0.00				
64.7360	5.94E-04	-32226.	1449.	1.92E-05	23.3729	1.20E+12
-22.133	60854.	0.00				
64.8720	6.25E-04	-29891.	1412.	1.91E-05	21.6796	1.20E+12
-23.347	60982.	0.00				
65.0080	6.56E-04	-27619.	1372.	1.91E-05	20.0314	1.20E+12
-24.563	61110.	0.00				
65.1440	6.87E-04	-25411.	1331.	1.90E-05	18.4306	1.20E+12

-25.781	61237.	0.00				
65.2800	7.18E-04	-23273.	1288.	1.90E-05	16.8796	1.20E+12
-27.002	61365.	0.00				
65.4160	7.49E-04	-21207.	1243.	1.90E-05	15.3808	1.20E+12
-28.226	61493.	0.00				
65.5520	7.80E-04	-19215.	1196.	1.89E-05	13.9365	1.20E+12
-29.453	61621.	0.00				
65.6880	8.11E-04	-17302.	1147.	1.89E-05	12.5492	1.20E+12
-30.684	61749.	0.00				
65.8240	8.42E-04	-15471.	1096.	1.89E-05	11.2210	1.20E+12
-31.917	61877.	0.00				
65.9600	8.73E-04	-13725.	1043.	1.89E-05	9.9546	1.20E+12
-33.154	62005.	0.00				
66.0960	9.03E-04	-12067.	987.7666	1.89E-05	8.7522	1.20E+12
-34.395	62132.	0.00				
66.2320	9.34E-04	-10501.	930.6176	1.88E-05	7.6162	1.20E+12
-35.640	62260.	0.00				
66.3680	9.65E-04	-9030.	871.4341	1.88E-05	6.5491	1.20E+12
-36.889	62388.	0.00				
66.5040	9.96E-04	-7657.	810.2094	1.88E-05	5.5532	1.20E+12
-38.141	62516.	0.00				
66.6400	0.00103	-6385.	746.9369	1.88E-05	4.6311	1.20E+12
-39.398	62644.	0.00				
66.7760	0.00106	-5219.	681.6097	1.88E-05	3.7850	1.20E+12
-40.659	62772.	0.00				
66.9120	0.00109	-4160.	614.2208	1.88E-05	3.0175	1.20E+12
-41.925	62899.	0.00				
67.0480	0.00112	-3214.	544.7630	1.88E-05	2.3309	1.20E+12
-43.195	63027.	0.00				
67.1840	0.00115	-2382.	473.2290	1.88E-05	1.7278	1.20E+12
-44.469	63155.	0.00				
67.3200	0.00118	-1669.	399.6113	1.88E-05	1.2106	1.20E+12
-45.748	63283.	0.00				
67.4560	0.00121	-1078.	323.9023	1.88E-05	0.7818	1.20E+12
-47.032	63411.	0.00				
67.5920	0.00124	-611.946	246.0944	1.88E-05	0.4438	1.20E+12
-48.321	63539.	0.00				
67.7280	0.00127	-274.669	166.1800	1.88E-05	0.1992	1.20E+12
-49.614	63666.	0.00				
67.8640	0.00130	-69.535	84.1511	1.88E-05	0.05043	1.20E+12
-50.912	63794.	0.00				
68.0000	0.00133	0.00	0.00	1.88E-05	0.00	1.20E+12
-52.215	31961.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          =      0.48748969 inches
Computed slope at pile head  =     -0.0017301 radians
Maximum bending moment       =      6793263. inch-lbs
Maximum shear force          =      48739. lbs
Depth of maximum bending moment =    23.12000000 feet below pile head
Depth of maximum shear force  =     9.24800000 feet below pile head
Number of iterations         =           24
Number of zero deflection points =          2
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
		Shear Max lbs	Moment Pile-head in-lbs				
1	V, lb	48739.	6793263.	0.00	0.4875	-0.00173	

```

Maximum pile-head deflection = 0.4874896916 inches
Maximum pile-head rotation   = -0.0017301000 radians = -0.099127 deg.
  
```

The analysis ended normally.

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 16ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 16ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 16ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 16ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:38:37

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	14.50000	4.00000
3	17.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	---
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
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1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	2.0454	-0.00440	0.00	-0.00542	3.19E-06	1.20E+12	
286.2504	119.5024	0.00					
0.1360	2.0365	381.1858	470.0032	-0.00542	0.2765	1.20E+12	
289.7387	240.8275	0.00					
0.2720	2.0277	1534.	945.7176	-0.00542	1.1127	1.20E+12	
293.2396	242.6443	0.00					
0.4080	2.0189	3468.	1427.	-0.00542	2.5153	1.20E+12	
296.7529	244.4551	0.00					
0.5440	2.0100	6192.	1914.	-0.00542	4.4912	1.20E+12	

300.2787	246.2601	0.00				
0.6800	2.0012	9716.	2407.	-0.00542	7.0472	1.20E+12
303.8170	248.0592	0.00				
0.8160	1.9923	14050.	2906.	-0.00542	10.1900	1.20E+12
307.3677	249.8526	0.00				
0.9520	1.9835	19202.	3411.	-0.00542	13.9266	1.20E+12
310.9308	251.6404	0.00				
1.0880	1.9746	25182.	3921.	-0.00542	18.2639	1.20E+12
314.5063	253.4225	0.00				
1.2240	1.9658	31999.	4437.	-0.00542	23.2087	1.20E+12
318.0943	255.1991	0.00				
1.3600	1.9569	39664.	4959.	-0.00542	28.7680	1.20E+12
321.6946	256.9703	0.00				
1.4960	1.9481	48186.	5487.	-0.00542	34.9487	1.20E+12
325.3074	258.7360	0.00				
1.6320	1.9393	57574.	6021.	-0.00542	41.7578	1.20E+12
328.9325	260.4964	0.00				
1.7680	1.9304	67838.	6561.	-0.00542	49.2023	1.20E+12
332.5700	262.2515	0.00				
1.9040	1.9216	78988.	7106.	-0.00542	57.2893	1.20E+12
336.2198	264.0014	0.00				
2.0400	1.9127	91034.	7658.	-0.00542	66.0258	1.20E+12
339.8820	265.7462	0.00				
2.1760	1.9039	103985.	8216.	-0.00542	75.4188	1.20E+12
343.5565	267.4858	0.00				
2.3120	1.8950	117851.	8780.	-0.00542	85.4755	1.20E+12
347.2434	269.2205	0.00				
2.4480	1.8862	132641.	9349.	-0.00542	96.2030	1.20E+12
350.9426	270.9501	0.00				
2.5840	1.8773	148367.	9925.	-0.00542	107.6084	1.20E+12
354.6540	272.6748	0.00				
2.7200	1.8685	165037.	10507.	-0.00542	119.6989	1.20E+12
358.3778	274.3947	0.00				
2.8560	1.8597	182661.	11095.	-0.00542	132.4817	1.20E+12
362.1139	276.1098	0.00				
2.9920	1.8508	201250.	11689.	-0.00542	145.9641	1.20E+12
365.8622	277.8202	0.00				
3.1280	1.8420	220814.	12289.	-0.00542	160.1531	1.20E+12
369.6228	279.5258	0.00				
3.2640	1.8331	241361.	12895.	-0.00542	175.0562	1.20E+12
373.3956	281.2268	0.00				
3.4000	1.8243	262904.	13508.	-0.00542	190.6806	1.20E+12
377.1807	282.9233	0.00				
3.5360	1.8155	285451.	14126.	-0.00542	207.0337	1.20E+12
380.9781	284.6153	0.00				
3.6720	1.8066	309012.	14751.	-0.00542	224.1226	1.20E+12
384.7876	286.3027	0.00				
3.8080	1.7978	333599.	15382.	-0.00542	241.9549	1.20E+12
388.6094	287.9858	0.00				
3.9440	1.7889	359220.	16020.	-0.00542	260.5379	1.20E+12

392.4433	289.6645	0.00				
4.0800	1.7801	385887.	16663.	-0.00541	279.8790	1.20E+12
396.2894	291.3389	0.00				
4.2160	1.7713	413610.	17313.	-0.00541	299.9856	1.20E+12
400.1478	293.0091	0.00				
4.3520	1.7624	442398.	17969.	-0.00541	320.8652	1.20E+12
404.0182	294.6751	0.00				
4.4880	1.7536	472262.	18632.	-0.00541	342.5252	1.20E+12
407.9009	296.3369	0.00				
4.6240	1.7448	503212.	19301.	-0.00541	364.9732	1.20E+12
411.7956	297.9946	0.00				
4.7600	1.7359	535260.	19976.	-0.00541	388.2167	1.20E+12
415.7025	299.6483	0.00				
4.8960	1.7271	568414.	20658.	-0.00541	412.2633	1.20E+12
419.6216	301.2980	0.00				
5.0320	1.7183	602686.	21346.	-0.00541	437.1204	1.20E+12
423.5527	302.9437	0.00				
5.1680	1.7094	638087.	22040.	-0.00541	462.7957	1.20E+12
427.4959	304.5856	0.00				
5.3040	1.7006	674625.	22741.	-0.00541	489.2969	1.20E+12
431.4512	306.2236	0.00				
5.4400	1.6918	712313.	23448.	-0.00541	516.6315	1.20E+12
435.4186	307.8578	0.00				
5.5760	1.6830	751161.	24162.	-0.00541	544.8072	1.20E+12
439.3980	309.4883	0.00				
5.7120	1.6741	791179.	24883.	-0.00541	573.8317	1.20E+12
443.3895	311.1151	0.00				
5.8480	1.6653	832378.	25610.	-0.00540	603.7128	1.20E+12
447.3930	312.7382	0.00				
5.9840	1.6565	874768.	26343.	-0.00540	634.4581	1.20E+12
451.4086	314.3577	0.00				
6.1200	1.6477	918361.	27083.	-0.00540	666.0754	1.20E+12
455.4361	315.9737	0.00				
6.2560	1.6389	963167.	27829.	-0.00540	698.5724	1.20E+12
459.4756	317.5861	0.00				
6.3920	1.6301	1009197.	28583.	-0.00540	731.9571	1.20E+12
463.5271	319.1951	0.00				
6.5280	1.6212	1056461.	29342.	-0.00540	766.2372	1.20E+12
467.5906	320.8007	0.00				
6.6640	1.6124	1104970.	30109.	-0.00540	801.4206	1.20E+12
471.6660	322.4030	0.00				
6.8000	1.6036	1154736.	30882.	-0.00539	837.5151	1.20E+12
475.7534	324.0019	0.00				
6.9360	1.5948	1205769.	31662.	-0.00539	874.5286	1.20E+12
479.8526	325.5975	0.00				
7.0720	1.5860	1258080.	32448.	-0.00539	912.4691	1.20E+12
483.9638	327.1899	0.00				
7.2080	1.5772	1311680.	33241.	-0.00539	951.3445	1.20E+12
488.0869	328.7791	0.00				
7.3440	1.5684	1366580.	34041.	-0.00539	991.1627	1.20E+12

492.2219	330.3652	0.00				
7.4800	1.5596	1422791.	34848.	-0.00539	1032.	1.20E+12
496.3687	331.9483	0.00				
7.6160	1.5509	1480324.	35662.	-0.00538	1074.	1.20E+12
500.5273	333.5282	0.00				
7.7520	1.5421	1539190.	36482.	-0.00538	1116.	1.20E+12
504.6978	335.1052	0.00				
7.8880	1.5333	1599401.	37309.	-0.00538	1160.	1.20E+12
508.8801	336.6792	0.00				
8.0240	1.5245	1660967.	38143.	-0.00538	1205.	1.20E+12
513.0742	338.2503	0.00				
8.1600	1.5157	1723899.	38984.	-0.00538	1250.	1.20E+12
517.2800	339.8186	0.00				
8.2960	1.5070	1788209.	39831.	-0.00537	1297.	1.20E+12
521.4977	341.3840	0.00				
8.4320	1.4982	1853908.	40686.	-0.00537	1345.	1.20E+12
525.7270	342.9467	0.00				
8.5680	1.4894	1921007.	41547.	-0.00537	1393.	1.20E+12
529.9681	344.5066	0.00				
8.7040	1.4807	1989518.	42416.	-0.00537	1443.	1.20E+12
534.2210	346.0639	0.00				
8.8400	1.4719	2059451.	43291.	-0.00536	1494.	1.20E+12
538.4854	347.6185	0.00				
8.9760	1.4632	2130819.	44173.	-0.00536	1545.	1.20E+12
542.7616	349.1705	0.00				
9.1120	1.4544	2203632.	45062.	-0.00536	1598.	1.20E+12
547.0494	350.7200	0.00				
9.2480	1.4457	2277903.	45959.	-0.00535	1652.	1.20E+12
551.3489	352.2670	0.00				
9.3840	1.4369	2353642.	46862.	-0.00535	1707.	1.20E+12
555.6599	353.8115	0.00				
9.5200	1.4282	2430861.	47772.	-0.00535	1763.	1.20E+12
559.9826	355.3536	0.00				
9.6560	1.4195	2509571.	48690.	-0.00534	1820.	1.20E+12
564.3168	356.8934	0.00				
9.7920	1.4108	2589784.	49614.	-0.00534	1878.	1.20E+12
568.6626	358.4308	0.00				
9.9280	1.4021	2671512.	50546.	-0.00534	1938.	1.20E+12
573.0199	359.9659	0.00				
10.0640	1.3934	2754766.	51485.	-0.00533	1998.	1.20E+12
577.3887	361.4988	0.00				
10.2000	1.3847	2839558.	52431.	-0.00533	2059.	1.20E+12
581.7690	363.0295	0.00				
10.3360	1.3760	2925900.	53384.	-0.00533	2122.	1.20E+12
586.1607	364.5581	0.00				
10.4720	1.3673	3013803.	54344.	-0.00532	2186.	1.20E+12
590.5639	366.0845	0.00				
10.6080	1.3586	3103278.	55311.	-0.00532	2251.	1.20E+12
594.9785	367.6089	0.00				
10.7440	1.3499	3194338.	56286.	-0.00531	2317.	1.20E+12

599.4045	369.1313	0.00				
10.8800	1.3413	3286995.	57268.	-0.00531	2384.	1.20E+12
603.8419	370.6517	0.00				
11.0160	1.3326	3381260.	58257.	-0.00530	2452.	1.20E+12
608.2906	372.1702	0.00				
11.1520	1.3239	3477145.	59253.	-0.00530	2522.	1.20E+12
612.7506	373.6868	0.00				
11.2880	1.3153	3574662.	60257.	-0.00529	2593.	1.20E+12
617.2219	375.2016	0.00				
11.4240	1.3067	3673824.	61268.	-0.00529	2665.	1.20E+12
621.7045	376.7146	0.00				
11.5600	1.2980	3774640.	62286.	-0.00528	2738.	1.20E+12
626.1983	378.2259	0.00				
11.6960	1.2894	3877125.	63312.	-0.00528	2812.	1.20E+12
630.7033	379.7354	0.00				
11.8320	1.2808	3981290.	64345.	-0.00527	2888.	1.20E+12
635.2195	381.2433	0.00				
11.9680	1.2722	4087146.	65385.	-0.00527	2964.	1.20E+12
639.7469	382.7496	0.00				
12.1040	1.2636	4194707.	66433.	-0.00526	3042.	1.20E+12
644.2854	384.2544	0.00				
12.2400	1.2550	4303983.	67488.	-0.00526	3122.	1.20E+12
648.8350	385.7576	0.00				
12.3760	1.2464	4414988.	68551.	-0.00525	3202.	1.20E+12
653.3956	387.2593	0.00				
12.5120	1.2379	4527732.	69621.	-0.00525	3284.	1.20E+12
657.9673	388.7597	0.00				
12.6480	1.2293	4642230.	70698.	-0.00524	3367.	1.20E+12
662.5500	390.2586	0.00				
12.7840	1.2208	4758492.	71783.	-0.00523	3451.	1.20E+12
667.1437	391.7562	0.00				
12.9200	1.2122	4876530.	72876.	-0.00523	3537.	1.20E+12
671.7483	393.2526	0.00				
13.0560	1.2037	4996358.	73976.	-0.00522	3624.	1.20E+12
676.3638	394.7477	0.00				
13.1920	1.1952	5117988.	75083.	-0.00521	3712.	1.20E+12
680.9903	396.2416	0.00				
13.3280	1.1867	5241431.	76199.	-0.00521	3802.	1.20E+12
685.6275	397.7344	0.00				
13.4640	1.1782	5366700.	77321.	-0.00520	3892.	1.20E+12
690.2756	399.2260	0.00				
13.6000	1.1697	5493808.	78452.	-0.00519	3985.	1.20E+12
694.9344	400.7167	0.00				
13.7360	1.1613	5622766.	79590.	-0.00518	4078.	1.20E+12
699.6040	402.2063	0.00				
13.8720	1.1528	5753588.	80735.	-0.00518	4173.	1.20E+12
704.2843	403.6950	0.00				
14.0080	1.1444	5886286.	81888.	-0.00517	4269.	1.20E+12
708.9753	405.1828	0.00				
14.1440	1.1360	6020872.	83049.	-0.00516	4367.	1.20E+12

713.6769	406.6697	0.00				
14.2800	1.1275	6157359.	84218.	-0.00515	4466.	1.20E+12
718.3891	408.1558	0.00				
14.4160	1.1191	6295759.	85394.	-0.00514	4566.	1.20E+12
723.1118	409.6411	0.00				
14.5520	1.1108	6436086.	86573.	-0.00513	4668.	1.20E+12
721.9758	417.8374	0.00				
14.6880	1.1024	6578335.	87743.	-0.00513	4771.	1.20E+12
710.8236	438.2645	0.00				
14.8240	1.0940	6722477.	88893.	-0.00512	4876.	1.20E+12
698.8285	460.9945	0.00				
14.9600	1.0857	6868481.	90023.	-0.00511	4982.	1.20E+12
685.8971	486.4810	0.00				
15.0960	1.0774	7016312.	91131.	-0.00510	5089.	1.20E+12
671.9172	515.3109	0.00				
15.2320	1.0690	7165932.	92215.	-0.00509	5197.	1.20E+12
656.7521	548.2584	0.00				
15.3680	1.0608	7317301.	93273.	-0.00508	5307.	1.20E+12
640.2326	586.3689	0.00				
15.5040	1.0525	7470375.	94303.	-0.00507	5418.	1.20E+12
622.1445	631.0924	0.00				
15.6400	1.0442	7625107.	95302.	-0.00506	5530.	1.20E+12
602.2112	684.5074	0.00				
15.7760	1.0360	7781443.	96267.	-0.00505	5644.	1.20E+12
580.0642	749.7136	0.00				
15.9120	1.0277	7939323.	97194.	-0.00504	5758.	1.20E+12
555.1950	831.5720	0.00				
16.0480	1.0195	8098682.	98076.	-0.00503	5874.	1.20E+12
526.8683	938.2143	0.00				
16.1840	1.0113	8259445.	98909.	-0.00501	5990.	1.20E+12
493.9530	1084.	0.00				
16.3200	1.0032	8421523.	99683.	-0.00500	6108.	1.20E+12
454.5482	1301.	0.00				
16.4560	0.9950	8584812.	100385.	-0.00499	6226.	1.20E+12
404.9952	1665.	0.00				
16.5920	0.9869	8749179.	100990.	-0.00498	6346.	1.20E+12
336.3106	2452.	0.00				
16.7280	0.9788	8914442.	101432.	-0.00497	6466.	1.20E+12
205.9198	6644.	0.00				
16.8640	0.9707	9080254.	101373.	-0.00496	6586.	1.20E+12
-278.103	3700.	0.00				
17.0000	0.9626	9245325.	100840.	-0.00494	6706.	1.20E+12
-374.918	2068.	0.00				
17.1360	0.9545	9409397.	100176.	-0.00493	6825.	1.20E+12
-439.437	1529.	0.00				
17.2720	0.9465	9572299.	99417.	-0.00492	6943.	1.20E+12
-490.486	1246.	0.00				
17.4080	0.9385	9733894.	98581.	-0.00490	7060.	1.20E+12
-533.848	1068.	0.00				
17.5440	0.9305	9894068.	97688.	-0.00489	7176.	1.20E+12

-560.616	983.2863	0.00				
17.6800	0.9225	1.01E+07	96772.	-0.00488	7291.	1.20E+12
-561.848	993.9634	0.00				
17.8160	0.9146	1.02E+07	95854.	-0.00486	7405.	1.20E+12
-563.064	1005.	0.00				
17.9520	0.9066	1.04E+07	94934.	-0.00485	7518.	1.20E+12
-564.262	1016.	0.00				
18.0880	0.8987	1.05E+07	94013.	-0.00484	7630.	1.20E+12
-565.442	1027.	0.00				
18.2240	0.8908	1.07E+07	93089.	-0.00482	7741.	1.20E+12
-566.604	1038.	0.00				
18.3600	0.8830	1.08E+07	92163.	-0.00481	7850.	1.20E+12
-567.748	1049.	0.00				
18.4960	0.8752	1.10E+07	91236.	-0.00479	7959.	1.20E+12
-568.875	1061.	0.00				
18.6320	0.8674	1.11E+07	90306.	-0.00478	8066.	1.20E+12
-569.983	1072.	0.00				
18.7680	0.8596	1.13E+07	89375.	-0.00476	8173.	1.20E+12
-571.074	1084.	0.00				
18.9040	0.8518	1.14E+07	88442.	-0.00475	8278.	1.20E+12
-572.146	1096.	0.00				
19.0400	0.8441	1.16E+07	87508.	-0.00473	8382.	1.20E+12
-573.199	1108.	0.00				
19.1760	0.8364	1.17E+07	86572.	-0.00471	8485.	1.20E+12
-574.235	1120.	0.00				
19.3120	0.8287	1.18E+07	85634.	-0.00470	8587.	1.20E+12
-575.252	1133.	0.00				
19.4480	0.8210	1.20E+07	84694.	-0.00468	8688.	1.20E+12
-576.250	1145.	0.00				
19.5840	0.8134	1.21E+07	83753.	-0.00467	8787.	1.20E+12
-577.230	1158.	0.00				
19.7200	0.8058	1.23E+07	82810.	-0.00465	8886.	1.20E+12
-578.191	1171.	0.00				
19.8560	0.7982	1.24E+07	81865.	-0.00463	8983.	1.20E+12
-579.133	1184.	0.00				
19.9920	0.7907	1.25E+07	80920.	-0.00462	9080.	1.20E+12
-580.056	1197.	0.00				
20.1280	0.7832	1.27E+07	79972.	-0.00460	9175.	1.20E+12
-580.960	1211.	0.00				
20.2640	0.7757	1.28E+07	79023.	-0.00458	9269.	1.20E+12
-581.845	1224.	0.00				
20.4000	0.7682	1.29E+07	78073.	-0.00456	9362.	1.20E+12
-582.711	1238.	0.00				
20.5360	0.7608	1.30E+07	77121.	-0.00455	9454.	1.20E+12
-583.558	1252.	0.00				
20.6720	0.7534	1.32E+07	76168.	-0.00453	9545.	1.20E+12
-584.385	1266.	0.00				
20.8080	0.7460	1.33E+07	75214.	-0.00451	9634.	1.20E+12
-585.193	1280.	0.00				
20.9440	0.7387	1.34E+07	74258.	-0.00449	9723.	1.20E+12

-585.981	1295.	0.00				
21.0800	0.7313	1.35E+07	73301.	-0.00447	9810.	1.20E+12
-586.750	1309.	0.00				
21.2160	0.7241	1.36E+07	72343.	-0.00446	9896.	1.20E+12
-587.499	1324.	0.00				
21.3520	0.7168	1.38E+07	71384.	-0.00444	9981.	1.20E+12
-588.228	1339.	0.00				
21.4880	0.7096	1.39E+07	70423.	-0.00442	10065.	1.20E+12
-588.938	1355.	0.00				
21.6240	0.7024	1.40E+07	69461.	-0.00440	10148.	1.20E+12
-589.627	1370.	0.00				
21.7600	0.6952	1.41E+07	68499.	-0.00438	10230.	1.20E+12
-590.296	1386.	0.00				
21.8960	0.6881	1.42E+07	67535.	-0.00436	10310.	1.20E+12
-590.946	1402.	0.00				
22.0320	0.6810	1.43E+07	66570.	-0.00434	10390.	1.20E+12
-591.575	1418.	0.00				
22.1680	0.6739	1.44E+07	65604.	-0.00432	10468.	1.20E+12
-592.183	1434.	0.00				
22.3040	0.6669	1.45E+07	64637.	-0.00430	10545.	1.20E+12
-592.772	1451.	0.00				
22.4400	0.6599	1.46E+07	63669.	-0.00428	10621.	1.20E+12
-593.340	1467.	0.00				
22.5760	0.6529	1.47E+07	62700.	-0.00426	10696.	1.20E+12
-593.887	1484.	0.00				
22.7120	0.6460	1.48E+07	61731.	-0.00424	10769.	1.20E+12
-594.414	1502.	0.00				
22.8480	0.6391	1.49E+07	60760.	-0.00422	10842.	1.20E+12
-594.920	1519.	0.00				
22.9840	0.6322	1.50E+07	59789.	-0.00420	10913.	1.20E+12
-595.405	1537.	0.00				
23.1200	0.6254	1.51E+07	58817.	-0.00418	10983.	1.20E+12
-595.869	1555.	0.00				
23.2560	0.6185	1.52E+07	57844.	-0.00416	11052.	1.20E+12
-596.312	1573.	0.00				
23.3920	0.6118	1.53E+07	56870.	-0.00414	11120.	1.20E+12
-596.734	1592.	0.00				
23.5280	0.6050	1.54E+07	55896.	-0.00412	11187.	1.20E+12
-597.135	1611.	0.00				
23.6640	0.5983	1.55E+07	54921.	-0.00410	11253.	1.20E+12
-597.515	1630.	0.00				
23.8000	0.5917	1.56E+07	53946.	-0.00408	11317.	1.20E+12
-597.873	1649.	0.00				
23.9360	0.5850	1.57E+07	52970.	-0.00405	11380.	1.20E+12
-598.210	1669.	0.00				
24.0720	0.5784	1.58E+07	51993.	-0.00403	11442.	1.20E+12
-598.525	1689.	0.00				
24.2080	0.5719	1.59E+07	51016.	-0.00401	11503.	1.20E+12
-598.819	1709.	0.00				
24.3440	0.5653	1.59E+07	50039.	-0.00399	11563.	1.20E+12

-599.091	1729.	0.00				
24.4800	0.5588	1.60E+07	49061.	-0.00397	11622.	1.20E+12
-599.341	1750.	0.00				
24.6160	0.5524	1.61E+07	48083.	-0.00395	11679.	1.20E+12
-599.570	1771.	0.00				
24.7520	0.5460	1.62E+07	47104.	-0.00392	11736.	1.20E+12
-599.776	1793.	0.00				
24.8880	0.5396	1.63E+07	46125.	-0.00390	11791.	1.20E+12
-599.960	1815.	0.00				
25.0240	0.5332	1.63E+07	45146.	-0.00388	11845.	1.20E+12
-600.123	1837.	0.00				
25.1600	0.5269	1.64E+07	44166.	-0.00386	11898.	1.20E+12
-600.263	1859.	0.00				
25.2960	0.5206	1.65E+07	43187.	-0.00384	11949.	1.20E+12
-600.380	1882.	0.00				
25.4320	0.5144	1.65E+07	42207.	-0.00381	12000.	1.20E+12
-600.476	1905.	0.00				
25.5680	0.5082	1.66E+07	41227.	-0.00379	12049.	1.20E+12
-600.548	1929.	0.00				
25.7040	0.5020	1.67E+07	40246.	-0.00377	12097.	1.20E+12
-600.598	1952.	0.00				
25.8400	0.4959	1.67E+07	39266.	-0.00375	12145.	1.20E+12
-600.626	1977.	0.00				
25.9760	0.4898	1.68E+07	38286.	-0.00372	12190.	1.20E+12
-600.631	2001.	0.00				
26.1120	0.4837	1.69E+07	37306.	-0.00370	12235.	1.20E+12
-600.613	2026.	0.00				
26.2480	0.4777	1.69E+07	36326.	-0.00368	12279.	1.20E+12
-600.571	2052.	0.00				
26.3840	0.4717	1.70E+07	35346.	-0.00365	12321.	1.20E+12
-600.507	2077.	0.00				
26.5200	0.4658	1.70E+07	34366.	-0.00363	12362.	1.20E+12
-600.420	2104.	0.00				
26.6560	0.4599	1.71E+07	33386.	-0.00361	12403.	1.20E+12
-600.310	2130.	0.00				
26.7920	0.4540	1.72E+07	32406.	-0.00358	12441.	1.20E+12
-600.176	2157.	0.00				
26.9280	0.4482	1.72E+07	31427.	-0.00356	12479.	1.20E+12
-600.019	2185.	0.00				
27.0640	0.4424	1.73E+07	30448.	-0.00354	12516.	1.20E+12
-599.838	2213.	0.00				
27.2000	0.4366	1.73E+07	29469.	-0.00351	12551.	1.20E+12
-599.634	2241.	0.00				
27.3360	0.4309	1.74E+07	28491.	-0.00349	12586.	1.20E+12
-599.406	2270.	0.00				
27.4720	0.4253	1.74E+07	27513.	-0.00347	12619.	1.20E+12
-599.154	2299.	0.00				
27.6080	0.4196	1.74E+07	26535.	-0.00344	12651.	1.20E+12
-598.878	2329.	0.00				
27.7440	0.4140	1.75E+07	25558.	-0.00342	12682.	1.20E+12

-598.579	2360.	0.00				
27.8800	0.4085	1.75E+07	24581.	-0.00339	12711.	1.20E+12
-598.255	2390.	0.00				
28.0160	0.4029	1.76E+07	23605.	-0.00337	12740.	1.20E+12
-597.907	2422.	0.00				
28.1520	0.3975	1.76E+07	22630.	-0.00335	12767.	1.20E+12
-597.535	2454.	0.00				
28.2880	0.3920	1.76E+07	21655.	-0.00332	12793.	1.20E+12
-597.139	2486.	0.00				
28.4240	0.3866	1.77E+07	20681.	-0.00330	12818.	1.20E+12
-596.718	2519.	0.00				
28.5600	0.3812	1.77E+07	19707.	-0.00328	12842.	1.20E+12
-596.272	2552.	0.00				
28.6960	0.3759	1.77E+07	18734.	-0.00325	12865.	1.20E+12
-595.802	2587.	0.00				
28.8320	0.3706	1.78E+07	17762.	-0.00323	12887.	1.20E+12
-595.307	2621.	0.00				
28.9680	0.3654	1.78E+07	16791.	-0.00320	12907.	1.20E+12
-594.788	2657.	0.00				
29.1040	0.3602	1.78E+07	15821.	-0.00318	12926.	1.20E+12
-594.243	2693.	0.00				
29.2400	0.3550	1.78E+07	14852.	-0.00315	12945.	1.20E+12
-593.673	2729.	0.00				
29.3760	0.3499	1.79E+07	13883.	-0.00313	12962.	1.20E+12
-593.078	2766.	0.00				
29.5120	0.3448	1.79E+07	12916.	-0.00311	12977.	1.20E+12
-592.458	2804.	0.00				
29.6480	0.3397	1.79E+07	11950.	-0.00308	12992.	1.20E+12
-591.813	2843.	0.00				
29.7840	0.3347	1.79E+07	10984.	-0.00306	13006.	1.20E+12
-591.142	2882.	0.00				
29.9200	0.3298	1.79E+07	10020.	-0.00303	13018.	1.20E+12
-590.445	2922.	0.00				
30.0560	0.3248	1.80E+07	9057.	-0.00301	13029.	1.20E+12
-589.723	2963.	0.00				
30.1920	0.3200	1.80E+07	8095.	-0.00298	13040.	1.20E+12
-588.975	3004.	0.00				
30.3280	0.3151	1.80E+07	7135.	-0.00296	13049.	1.20E+12
-588.202	3046.	0.00				
30.4640	0.3103	1.80E+07	6175.	-0.00293	13056.	1.20E+12
-587.402	3089.	0.00				
30.6000	0.3055	1.80E+07	5217.	-0.00291	13063.	1.20E+12
-586.576	3133.	0.00				
30.7360	0.3008	1.80E+07	4261.	-0.00289	13069.	1.20E+12
-585.724	3178.	0.00				
30.8720	0.2961	1.80E+07	3306.	-0.00286	13073.	1.20E+12
-584.845	3223.	0.00				
31.0080	0.2915	1.80E+07	2352.	-0.00284	13077.	1.20E+12
-583.940	3270.	0.00				
31.1440	0.2868	1.80E+07	1400.	-0.00281	13079.	1.20E+12

-583.008	3317.	0.00				
31.2800	0.2823	1.80E+07	449.0676	-0.00279	13080.	1.20E+12
-582.050	3365.	0.00				
31.4160	0.2778	1.80E+07	-500.035	-0.00276	13080.	1.20E+12
-581.065	3414.	0.00				
31.5520	0.2733	1.80E+07	-1448.	-0.00274	13079.	1.20E+12
-580.053	3464.	0.00				
31.6880	0.2688	1.80E+07	-2393.	-0.00271	13077.	1.20E+12
-579.014	3515.	0.00				
31.8240	0.2644	1.80E+07	-3337.	-0.00269	13073.	1.20E+12
-577.948	3567.	0.00				
31.9600	0.2600	1.80E+07	-4280.	-0.00266	13069.	1.20E+12
-576.854	3620.	0.00				
32.0960	0.2557	1.80E+07	-5220.	-0.00264	13063.	1.20E+12
-575.733	3675.	0.00				
32.2320	0.2514	1.80E+07	-6159.	-0.00262	13056.	1.20E+12
-574.585	3730.	0.00				
32.3680	0.2472	1.80E+07	-7096.	-0.00259	13048.	1.20E+12
-573.409	3786.	0.00				
32.5040	0.2430	1.80E+07	-8030.	-0.00257	13039.	1.20E+12
-572.204	3844.	0.00				
32.6400	0.2388	1.80E+07	-8963.	-0.00254	13029.	1.20E+12
-570.972	3902.	0.00				
32.7760	0.2347	1.79E+07	-9894.	-0.00252	13018.	1.20E+12
-569.712	3962.	0.00				
32.9120	0.2306	1.79E+07	-10823.	-0.00249	13006.	1.20E+12
-568.424	4023.	0.00				
33.0480	0.2265	1.79E+07	-11749.	-0.00247	12993.	1.20E+12
-567.107	4086.	0.00				
33.1840	0.2225	1.79E+07	-12674.	-0.00244	12978.	1.20E+12
-565.762	4150.	0.00				
33.3200	0.2185	1.79E+07	-13596.	-0.00242	12963.	1.20E+12
-564.388	4215.	0.00				
33.4560	0.2146	1.78E+07	-14516.	-0.00240	12946.	1.20E+12
-562.985	4281.	0.00				
33.5920	0.2107	1.78E+07	-15434.	-0.00237	12928.	1.20E+12
-561.553	4349.	0.00				
33.7280	0.2069	1.78E+07	-16349.	-0.00235	12909.	1.20E+12
-560.092	4419.	0.00				
33.8640	0.2031	1.78E+07	-17262.	-0.00232	12890.	1.20E+12
-558.602	4490.	0.00				
34.0000	0.1993	1.77E+07	-18172.	-0.00230	12869.	1.20E+12
-557.082	4562.	0.00				
34.1360	0.1956	1.77E+07	-19080.	-0.00228	12847.	1.20E+12
-555.532	4636.	0.00				
34.2720	0.1919	1.77E+07	-19985.	-0.00225	12823.	1.20E+12
-553.953	4712.	0.00				
34.4080	0.1882	1.76E+07	-20888.	-0.00223	12799.	1.20E+12
-552.344	4790.	0.00				
34.5440	0.1846	1.76E+07	-21788.	-0.00220	12774.	1.20E+12

-550.704	4869.	0.00				
34.6800	0.1810	1.76E+07	-22686.	-0.00218	12748.	1.20E+12
-549.034	4950.	0.00				
34.8160	0.1775	1.75E+07	-23580.	-0.00216	12720.	1.20E+12
-547.333	5033.	0.00				
34.9520	0.1740	1.75E+07	-24472.	-0.00213	12692.	1.20E+12
-545.602	5118.	0.00				
35.0880	0.1705	1.75E+07	-25361.	-0.00211	12662.	1.20E+12
-543.840	5205.	0.00				
35.2240	0.1671	1.74E+07	-26247.	-0.00208	12632.	1.20E+12
-542.046	5294.	0.00				
35.3600	0.1637	1.74E+07	-27130.	-0.00206	12600.	1.20E+12
-540.221	5385.	0.00				
35.4960	0.1604	1.73E+07	-28010.	-0.00204	12568.	1.20E+12
-538.365	5478.	0.00				
35.6320	0.1571	1.73E+07	-28887.	-0.00201	12534.	1.20E+12
-536.477	5574.	0.00				
35.7680	0.1538	1.72E+07	-29761.	-0.00199	12499.	1.20E+12
-534.556	5672.	0.00				
35.9040	0.1506	1.72E+07	-30632.	-0.00197	12463.	1.20E+12
-532.603	5772.	0.00				
36.0400	0.1474	1.71E+07	-31500.	-0.00194	12427.	1.20E+12
-530.618	5875.	0.00				
36.1760	0.1442	1.71E+07	-32364.	-0.00192	12389.	1.20E+12
-528.600	5981.	0.00				
36.3120	0.1411	1.70E+07	-33225.	-0.00190	12350.	1.20E+12
-526.548	6089.	0.00				
36.4480	0.1380	1.70E+07	-34082.	-0.00187	12310.	1.20E+12
-523.435	6188.	0.00				
36.5840	0.1350	1.69E+07	-34933.	-0.00185	12269.	1.20E+12
-520.191	6288.	0.00				
36.7200	0.1320	1.69E+07	-35780.	-0.00183	12227.	1.20E+12
-516.927	6391.	0.00				
36.8560	0.1290	1.68E+07	-36621.	-0.00180	12185.	1.20E+12
-513.644	6496.	0.00				
36.9920	0.1261	1.67E+07	-37456.	-0.00178	12141.	1.20E+12
-510.342	6604.	0.00				
37.1280	0.1232	1.67E+07	-38286.	-0.00176	12096.	1.20E+12
-507.021	6715.	0.00				
37.2640	0.1204	1.66E+07	-39111.	-0.00174	12050.	1.20E+12
-503.679	6829.	0.00				
37.4000	0.1176	1.65E+07	-39930.	-0.00171	12003.	1.20E+12
-500.318	6945.	0.00				
37.5360	0.1148	1.65E+07	-40744.	-0.00169	11956.	1.20E+12
-496.937	7065.	0.00				
37.6720	0.1120	1.64E+07	-41552.	-0.00167	11907.	1.20E+12
-493.535	7189.	0.00				
37.8080	0.1093	1.63E+07	-42355.	-0.00165	11857.	1.20E+12
-490.112	7316.	0.00				
37.9440	0.1067	1.63E+07	-43152.	-0.00162	11807.	1.20E+12

-486.668	7446.	0.00				
38.0800	0.1040	1.62E+07	-43944.	-0.00160	11755.	1.20E+12
-483.203	7580.	0.00				
38.2160	0.1014	1.61E+07	-44729.	-0.00158	11703.	1.20E+12
-479.716	7718.	0.00				
38.3520	0.09888	1.61E+07	-45509.	-0.00156	11649.	1.20E+12
-476.207	7860.	0.00				
38.4880	0.09635	1.60E+07	-46284.	-0.00154	11595.	1.20E+12
-472.676	8006.	0.00				
38.6240	0.09386	1.59E+07	-47052.	-0.00151	11540.	1.20E+12
-469.122	8157.	0.00				
38.7600	0.09141	1.58E+07	-47815.	-0.00149	11483.	1.20E+12
-465.544	8312.	0.00				
38.8960	0.08899	1.58E+07	-48572.	-0.00147	11426.	1.20E+12
-461.943	8472.	0.00				
39.0320	0.08660	1.57E+07	-49323.	-0.00145	11369.	1.20E+12
-458.318	8637.	0.00				
39.1680	0.08426	1.56E+07	-50068.	-0.00143	11310.	1.20E+12
-454.669	8807.	0.00				
39.3040	0.08194	1.55E+07	-50807.	-0.00141	11250.	1.20E+12
-450.995	8982.	0.00				
39.4400	0.07966	1.54E+07	-51540.	-0.00139	11189.	1.20E+12
-447.295	9164.	0.00				
39.5760	0.07741	1.53E+07	-52267.	-0.00137	11128.	1.20E+12
-443.569	9351.	0.00				
39.7120	0.07520	1.53E+07	-52987.	-0.00135	11066.	1.20E+12
-439.816	9545.	0.00				
39.8480	0.07302	1.52E+07	-53702.	-0.00132	11003.	1.20E+12
-436.037	9745.	0.00				
39.9840	0.07088	1.51E+07	-54411.	-0.00130	10939.	1.20E+12
-432.229	9952.	0.00				
40.1200	0.06877	1.50E+07	-55113.	-0.00128	10874.	1.20E+12
-428.393	10167.	0.00				
40.2560	0.06669	1.49E+07	-55809.	-0.00126	10808.	1.20E+12
-424.527	10389.	0.00				
40.3920	0.06465	1.48E+07	-56498.	-0.00124	10742.	1.20E+12
-420.632	10619.	0.00				
40.5280	0.06263	1.47E+07	-57182.	-0.00122	10674.	1.20E+12
-416.705	10858.	0.00				
40.6640	0.06065	1.46E+07	-57859.	-0.00120	10606.	1.20E+12
-412.747	11106.	0.00				
40.8000	0.05871	1.45E+07	-58529.	-0.00118	10537.	1.20E+12
-408.756	11363.	0.00				
40.9360	0.05679	1.44E+07	-59193.	-0.00116	10468.	1.20E+12
-404.731	11630.	0.00				
41.0720	0.05491	1.43E+07	-59850.	-0.00114	10397.	1.20E+12
-400.671	11908.	0.00				
41.2080	0.05306	1.42E+07	-60500.	-0.00112	10326.	1.20E+12
-396.576	12198.	0.00				
41.3440	0.05124	1.41E+07	-61144.	-0.00110	10254.	1.20E+12

-392.443	12499.	0.00				
41.4800	0.04945	1.40E+07	-61781.	-0.00109	10181.	1.20E+12
-388.272	12813.	0.00				
41.6160	0.04770	1.39E+07	-62412.	-0.00107	10108.	1.20E+12
-384.061	13141.	0.00				
41.7520	0.04597	1.38E+07	-63035.	-0.00105	10033.	1.20E+12
-379.809	13483.	0.00				
41.8880	0.04428	1.37E+07	-63651.	-0.00103	9959.	1.20E+12
-375.513	13841.	0.00				
42.0240	0.04261	1.36E+07	-64261.	-0.00101	9883.	1.20E+12
-371.173	14215.	0.00				
42.1600	0.04098	1.35E+07	-64863.	-9.92E-04	9806.	1.20E+12
-366.786	14608.	0.00				
42.2960	0.03937	1.34E+07	-65458.	-9.74E-04	9729.	1.20E+12
-362.351	15019.	0.00				
42.4320	0.03780	1.33E+07	-66045.	-9.56E-04	9651.	1.20E+12
-357.864	15451.	0.00				
42.5680	0.03626	1.32E+07	-66626.	-9.38E-04	9573.	1.20E+12
-353.325	15904.	0.00				
42.7040	0.03474	1.31E+07	-67199.	-9.20E-04	9494.	1.20E+12
-348.729	16382.	0.00				
42.8400	0.03325	1.30E+07	-67764.	-9.02E-04	9414.	1.20E+12
-344.074	16886.	0.00				
42.9760	0.03180	1.29E+07	-68322.	-8.84E-04	9333.	1.20E+12
-339.358	17418.	0.00				
43.1120	0.03037	1.28E+07	-68872.	-8.67E-04	9252.	1.20E+12
-334.576	17981.	0.00				
43.2480	0.02897	1.26E+07	-69414.	-8.50E-04	9170.	1.20E+12
-329.725	18577.	0.00				
43.3840	0.02759	1.25E+07	-69948.	-8.32E-04	9088.	1.20E+12
-324.800	19209.	0.00				
43.5200	0.02625	1.24E+07	-70474.	-8.16E-04	9005.	1.20E+12
-319.798	19883.	0.00				
43.6560	0.02493	1.23E+07	-70991.	-7.99E-04	8921.	1.20E+12
-314.713	20600.	0.00				
43.7920	0.02364	1.22E+07	-71501.	-7.82E-04	8837.	1.20E+12
-309.539	21367.	0.00				
43.9280	0.02238	1.21E+07	-72002.	-7.66E-04	8752.	1.20E+12
-304.270	22188.	0.00				
44.0640	0.02114	1.19E+07	-72494.	-7.49E-04	8666.	1.20E+12
-298.899	23071.	0.00				
44.2000	0.01993	1.18E+07	-72977.	-7.33E-04	8580.	1.20E+12
-293.417	24021.	0.00				
44.3360	0.01875	1.17E+07	-73452.	-7.17E-04	8493.	1.20E+12
-287.817	25050.	0.00				
44.4720	0.01759	1.16E+07	-73917.	-7.01E-04	8406.	1.20E+12
-282.087	26166.	0.00				
44.6080	0.01646	1.15E+07	-74372.	-6.85E-04	8318.	1.20E+12
-276.215	27382.	0.00				
44.7440	0.01536	1.13E+07	-74818.	-6.70E-04	8230.	1.20E+12

-270.189	28714.	0.00				
44.8800	0.01428	1.12E+07	-75254.	-6.55E-04	8141.	1.20E+12
-263.991	30179.	0.00				
45.0160	0.01322	1.11E+07	-75680.	-6.39E-04	8052.	1.20E+12
-257.603	31801.	0.00				
45.1520	0.01219	1.10E+07	-76095.	-6.24E-04	7962.	1.20E+12
-251.004	33608.	0.00				
45.2880	0.01118	1.09E+07	-76499.	-6.10E-04	7872.	1.20E+12
-244.165	35636.	0.00				
45.4240	0.01020	1.07E+07	-76891.	-5.95E-04	7781.	1.20E+12
-237.057	37932.	0.00				
45.5600	0.00924	1.06E+07	-77272.	-5.80E-04	7690.	1.20E+12
-229.638	40558.	0.00				
45.6960	0.00830	1.05E+07	-77641.	-5.66E-04	7598.	1.20E+12
-221.859	43598.	0.00				
45.8320	0.00739	1.03E+07	-77996.	-5.52E-04	7506.	1.20E+12
-213.658	47166.	0.00				
45.9680	0.00650	1.02E+07	-78338.	-5.38E-04	7413.	1.20E+12
-204.952	51430.	0.00				
46.1040	0.00564	1.01E+07	-78664.	-5.24E-04	7321.	1.20E+12
-195.631	56637.	0.00				
46.2400	0.00479	9964631.	-78975.	-5.10E-04	7227.	1.20E+12
-185.542	63175.	0.00				
46.3760	0.00397	9835497.	-79269.	-4.97E-04	7134.	1.20E+12
-174.461	71696.	0.00				
46.5120	0.00317	9705897.	-79544.	-4.84E-04	7040.	1.20E+12
-162.038	83392.	0.00				
46.6480	0.00239	9575866.	-79796.	-4.71E-04	6945.	1.20E+12
-147.682	100736.	0.00				
46.7840	0.00164	9445441.	-80023.	-4.58E-04	6851.	1.20E+12
-130.241	129979.	0.00				
46.9200	8.99E-04	9314670.	-80217.	-4.45E-04	6756.	1.20E+12
-106.829	193936.	0.00				
47.0560	1.83E-04	9183614.	-80355.	-4.32E-04	6661.	1.20E+12
-63.052	561200.	0.00				
47.1920	-5.12E-04	9052390.	-80334.	-4.20E-04	6566.	1.20E+12
88.6410	282611.	0.00				
47.3280	-0.00119	8921402.	-80166.	-4.08E-04	6471.	1.20E+12
117.5028	161552.	0.00				
47.4640	-0.00184	8790727.	-79959.	-3.96E-04	6376.	1.20E+12
136.2099	120659.	0.00				
47.6000	-0.00248	8660415.	-79725.	-3.84E-04	6281.	1.20E+12
150.5307	99133.	0.00				
47.7360	-0.00309	8530504.	-79470.	-3.72E-04	6187.	1.20E+12
162.2846	85580.	0.00				
47.8720	-0.00369	8401025.	-79197.	-3.60E-04	6093.	1.20E+12
172.3139	76161.	0.00				
48.0080	-0.00427	8272005.	-78960.	-3.49E-04	6000.	1.20E+12
118.1145	45129.	0.00				
48.1440	-0.00483	8143300.	-78754.	-3.38E-04	5906.	1.20E+12

133.9957	45257.	0.00				
48.2800	-0.00537	8014951.	-78523.	-3.27E-04	5813.	1.20E+12
149.4620	45385.	0.00				
48.4160	-0.00590	7887001.	-78267.	-3.16E-04	5720.	1.20E+12
164.5170	45513.	0.00				
48.5520	-0.00641	7759489.	-77986.	-3.06E-04	5628.	1.20E+12
179.1644	45640.	0.00				
48.6880	-0.00690	7632454.	-77682.	-2.95E-04	5536.	1.20E+12
193.4083	45768.	0.00				
48.8240	-0.00737	7505934.	-77355.	-2.85E-04	5444.	1.20E+12
207.2523	45896.	0.00				
48.9600	-0.00783	7379966.	-77006.	-2.75E-04	5353.	1.20E+12
220.7004	46024.	0.00				
49.0960	-0.00827	7254586.	-76635.	-2.65E-04	5262.	1.20E+12
233.7567	46152.	0.00				
49.2320	-0.00869	7129828.	-76243.	-2.55E-04	5171.	1.20E+12
246.4252	46280.	0.00				
49.3680	-0.00910	7005727.	-75831.	-2.45E-04	5081.	1.20E+12
258.7099	46407.	0.00				
49.5040	-0.00949	6882315.	-75399.	-2.36E-04	4992.	1.20E+12
270.6150	46535.	0.00				
49.6400	-0.00987	6759623.	-74948.	-2.27E-04	4903.	1.20E+12
282.1448	46663.	0.00				
49.7760	-0.01023	6637684.	-74479.	-2.17E-04	4814.	1.20E+12
293.3033	46791.	0.00				
49.9120	-0.01058	6516525.	-73991.	-2.08E-04	4726.	1.20E+12
304.0949	46919.	0.00				
50.0480	-0.01091	6396176.	-73486.	-2.00E-04	4639.	1.20E+12
314.5238	47047.	0.00				
50.1840	-0.01123	6276665.	-72965.	-1.91E-04	4552.	1.20E+12
324.5944	47175.	0.00				
50.3200	-0.01153	6158019.	-72427.	-1.83E-04	4466.	1.20E+12
334.3111	47302.	0.00				
50.4560	-0.01183	6040263.	-71874.	-1.74E-04	4381.	1.20E+12
343.6781	47430.	0.00				
50.5920	-0.01210	5923422.	-71306.	-1.66E-04	4296.	1.20E+12
352.7000	47558.	0.00				
50.7280	-0.01237	5807520.	-70723.	-1.58E-04	4212.	1.20E+12
361.3811	47686.	0.00				
50.8640	-0.01262	5692582.	-70127.	-1.50E-04	4129.	1.20E+12
369.7259	47814.	0.00				
51.0000	-0.01286	5578628.	-69517.	-1.43E-04	4046.	1.20E+12
377.7389	47942.	0.00				
51.1360	-0.01309	5465680.	-68894.	-1.35E-04	3964.	1.20E+12
385.4245	48069.	0.00				
51.2720	-0.01330	5353758.	-68259.	-1.28E-04	3883.	1.20E+12
392.7873	48197.	0.00				
51.4080	-0.01350	5242883.	-67612.	-1.21E-04	3803.	1.20E+12
399.8317	48325.	0.00				
51.5440	-0.01369	5133072.	-66954.	-1.14E-04	3723.	1.20E+12

406.5622	48453.	0.00				
51.6800	-0.01387	5024345.	-66285.	-1.07E-04	3644.	1.20E+12
412.9834	48581.	0.00				
51.8160	-0.01404	4916717.	-65606.	-9.99E-05	3566.	1.20E+12
419.0999	48709.	0.00				
51.9520	-0.01420	4810206.	-64918.	-9.33E-05	3489.	1.20E+12
424.9160	48837.	0.00				
52.0880	-0.01435	4704826.	-64220.	-8.68E-05	3412.	1.20E+12
430.4364	48964.	0.00				
52.2240	-0.01448	4600593.	-63513.	-8.05E-05	3337.	1.20E+12
435.6657	49092.	0.00				
52.3600	-0.01461	4497520.	-62798.	-7.43E-05	3262.	1.20E+12
440.6082	49220.	0.00				
52.4960	-0.01473	4395621.	-62075.	-6.83E-05	3188.	1.20E+12
445.2686	49348.	0.00				
52.6320	-0.01483	4294908.	-61345.	-6.23E-05	3115.	1.20E+12
449.6513	49476.	0.00				
52.7680	-0.01493	4195392.	-60608.	-5.66E-05	3043.	1.20E+12
453.7609	49604.	0.00				
52.9040	-0.01502	4097085.	-59864.	-5.09E-05	2972.	1.20E+12
457.6018	49731.	0.00				
53.0400	-0.01510	3999996.	-59114.	-4.54E-05	2901.	1.20E+12
461.1786	49859.	0.00				
53.1760	-0.01517	3904136.	-58359.	-4.00E-05	2832.	1.20E+12
464.4956	49987.	0.00				
53.3120	-0.01523	3809513.	-57598.	-3.48E-05	2763.	1.20E+12
467.5574	50115.	0.00				
53.4480	-0.01528	3716136.	-56833.	-2.97E-05	2695.	1.20E+12
470.3683	50243.	0.00				
53.5840	-0.01532	3624011.	-56063.	-2.47E-05	2628.	1.20E+12
472.9329	50371.	0.00				
53.7200	-0.01536	3533146.	-55289.	-1.98E-05	2563.	1.20E+12
475.2553	50499.	0.00				
53.8560	-0.01539	3443546.	-54512.	-1.51E-05	2498.	1.20E+12
477.3402	50626.	0.00				
53.9920	-0.01541	3355218.	-53732.	-1.04E-05	2433.	1.20E+12
479.1917	50754.	0.00				
54.1280	-0.01542	3268166.	-52948.	-5.94E-06	2370.	1.20E+12
480.8142	50882.	0.00				
54.2640	-0.01543	3182395.	-52162.	-1.55E-06	2308.	1.20E+12
482.2120	51010.	0.00				
54.4000	-0.01543	3097908.	-51374.	2.72E-06	2247.	1.20E+12
483.3893	51138.	0.00				
54.5360	-0.01542	3014709.	-50585.	6.88E-06	2187.	1.20E+12
484.3504	51266.	0.00				
54.6720	-0.01540	2932800.	-49794.	1.09E-05	2127.	1.20E+12
485.0995	51393.	0.00				
54.8080	-0.01538	2852182.	-49002.	1.49E-05	2069.	1.20E+12
485.6408	51521.	0.00				
54.9440	-0.01536	2772859.	-48209.	1.87E-05	2011.	1.20E+12

485.9783	51649.	0.00				
55.0800	-0.01532	2694829.	-47415.	2.24E-05	1955.	1.20E+12
486.1162	51777.	0.00				
55.2160	-0.01528	2618094.	-46622.	2.60E-05	1899.	1.20E+12
486.0586	51905.	0.00				
55.3520	-0.01524	2542654.	-45829.	2.95E-05	1844.	1.20E+12
485.8095	52033.	0.00				
55.4880	-0.01519	2468508.	-45037.	3.29E-05	1790.	1.20E+12
485.3728	52160.	0.00				
55.6240	-0.01513	2395655.	-44245.	3.62E-05	1738.	1.20E+12
484.7525	52288.	0.00				
55.7600	-0.01507	2324092.	-43455.	3.95E-05	1686.	1.20E+12
483.9525	52416.	0.00				
55.8960	-0.01500	2253819.	-42666.	4.26E-05	1635.	1.20E+12
482.9767	52544.	0.00				
56.0320	-0.01493	2184832.	-41878.	4.56E-05	1585.	1.20E+12
481.8289	52672.	0.00				
56.1680	-0.01485	2117128.	-41093.	4.85E-05	1536.	1.20E+12
480.5129	52800.	0.00				
56.3040	-0.01477	2050704.	-40310.	5.13E-05	1487.	1.20E+12
479.0324	52928.	0.00				
56.4400	-0.01468	1985556.	-39530.	5.41E-05	1440.	1.20E+12
477.3911	53055.	0.00				
56.5760	-0.01459	1921680.	-38752.	5.68E-05	1394.	1.20E+12
475.5927	53183.	0.00				
56.7120	-0.01450	1859070.	-37977.	5.93E-05	1348.	1.20E+12
473.6407	53311.	0.00				
56.8480	-0.01440	1797721.	-37206.	6.18E-05	1304.	1.20E+12
471.5388	53439.	0.00				
56.9840	-0.01430	1737629.	-36438.	6.42E-05	1260.	1.20E+12
469.2903	53567.	0.00				
57.1200	-0.01419	1678786.	-35674.	6.65E-05	1218.	1.20E+12
466.8987	53695.	0.00				
57.2560	-0.01408	1621187.	-34915.	6.88E-05	1176.	1.20E+12
464.3676	53822.	0.00				
57.3920	-0.01397	1564825.	-34159.	7.10E-05	1135.	1.20E+12
461.7001	53950.	0.00				
57.5280	-0.01385	1509693.	-33408.	7.30E-05	1095.	1.20E+12
458.8996	54078.	0.00				
57.6640	-0.01373	1455783.	-32661.	7.51E-05	1056.	1.20E+12
455.9694	54206.	0.00				
57.8000	-0.01360	1403087.	-31919.	7.70E-05	1018.	1.20E+12
452.9126	54334.	0.00				
57.9360	-0.01348	1351597.	-31183.	7.89E-05	980.2958	1.20E+12
449.7325	54462.	0.00				
58.0720	-0.01335	1301306.	-30452.	8.07E-05	943.8200	1.20E+12
446.4320	54590.	0.00				
58.2080	-0.01321	1252203.	-29726.	8.24E-05	908.2065	1.20E+12
443.0142	54717.	0.00				
58.3440	-0.01308	1204281.	-29006.	8.41E-05	873.4488	1.20E+12

439.4822	54845.	0.00				
58.4800	-0.01294	1157528.	-28291.	8.57E-05	839.5401	1.20E+12
435.8388	54973.	0.00				
58.6160	-0.01280	1111937.	-27583.	8.72E-05	806.4733	1.20E+12
432.0869	55101.	0.00				
58.7520	-0.01265	1067497.	-26881.	8.87E-05	774.2413	1.20E+12
428.2294	55229.	0.00				
58.8880	-0.01251	1024197.	-26186.	9.01E-05	742.8364	1.20E+12
424.2689	55357.	0.00				
59.0240	-0.01236	982027.	-25497.	9.15E-05	712.2511	1.20E+12
420.2083	55484.	0.00				
59.1600	-0.01221	940976.	-24814.	9.28E-05	682.4775	1.20E+12
416.0501	55612.	0.00				
59.2960	-0.01206	901033.	-24139.	9.41E-05	653.5077	1.20E+12
411.7971	55740.	0.00				
59.4320	-0.01190	862188.	-23470.	9.53E-05	625.3333	1.20E+12
407.4516	55868.	0.00				
59.5680	-0.01175	824427.	-22809.	9.64E-05	597.9461	1.20E+12
403.0163	55996.	0.00				
59.7040	-0.01159	787740.	-22155.	9.75E-05	571.3373	1.20E+12
398.4935	56124.	0.00				
59.8400	-0.01143	752114.	-21508.	9.86E-05	545.4984	1.20E+12
393.8856	56252.	0.00				
59.9760	-0.01127	717537.	-20869.	9.96E-05	520.4203	1.20E+12
389.1949	56379.	0.00				
60.1120	-0.01110	683997.	-20238.	1.01E-04	496.0941	1.20E+12
384.4238	56507.	0.00				
60.2480	-0.01094	651481.	-19614.	1.01E-04	472.5104	1.20E+12
379.5744	56635.	0.00				
60.3840	-0.01077	619975.	-18999.	1.02E-04	449.6601	1.20E+12
374.6488	56763.	0.00				
60.5200	-0.01060	589468.	-18392.	1.03E-04	427.5334	1.20E+12
369.6492	56891.	0.00				
60.6560	-0.01044	559945.	-17793.	1.04E-04	406.1208	1.20E+12
364.5777	57019.	0.00				
60.7920	-0.01026	531393.	-17202.	1.05E-04	385.4125	1.20E+12
359.4361	57146.	0.00				
60.9280	-0.01009	503799.	-16619.	1.05E-04	365.3985	1.20E+12
354.2264	57274.	0.00				
61.0640	-0.00992	477147.	-16046.	1.06E-04	346.0688	1.20E+12
348.9506	57402.	0.00				
61.2000	-0.00975	451426.	-15480.	1.07E-04	327.4132	1.20E+12
343.6104	57530.	0.00				
61.3360	-0.00957	426619.	-14924.	1.07E-04	309.4213	1.20E+12
338.2076	57658.	0.00				
61.4720	-0.00940	402713.	-14377.	1.08E-04	292.0828	1.20E+12
332.7439	57786.	0.00				
61.6080	-0.00922	379694.	-13838.	1.08E-04	275.3870	1.20E+12
327.2210	57913.	0.00				
61.7440	-0.00904	357546.	-13309.	1.09E-04	259.3234	1.20E+12

321.6405	58041.	0.00				
61.8800	-0.00887	336255.	-12788.	1.09E-04	243.8811	1.20E+12
316.0039	58169.	0.00				
62.0160	-0.00869	315805.	-12277.	1.10E-04	229.0492	1.20E+12
310.3128	58297.	0.00				
62.1520	-0.00851	296182.	-11775.	1.10E-04	214.8168	1.20E+12
304.5685	58425.	0.00				
62.2880	-0.00833	277370.	-11283.	1.11E-04	201.1727	1.20E+12
298.7726	58553.	0.00				
62.4240	-0.00815	259354.	-10800.	1.11E-04	188.1058	1.20E+12
292.9263	58681.	0.00				
62.5600	-0.00797	242118.	-10327.	1.11E-04	175.6047	1.20E+12
287.0309	58808.	0.00				
62.6960	-0.00778	225646.	-9863.	1.12E-04	163.6581	1.20E+12
281.0877	58936.	0.00				
62.8320	-0.00760	209923.	-9410.	1.12E-04	152.2545	1.20E+12
275.0978	59064.	0.00				
62.9680	-0.00742	194933.	-8966.	1.12E-04	141.3823	1.20E+12
269.0625	59192.	0.00				
63.1040	-0.00724	180659.	-8531.	1.12E-04	131.0299	1.20E+12
262.9828	59320.	0.00				
63.2400	-0.00705	167086.	-8107.	1.13E-04	121.1855	1.20E+12
256.8598	59448.	0.00				
63.3760	-0.00687	154197.	-7693.	1.13E-04	111.8373	1.20E+12
250.6945	59575.	0.00				
63.5120	-0.00668	141976.	-7289.	1.13E-04	102.9733	1.20E+12
244.4879	59703.	0.00				
63.6480	-0.00650	130406.	-6895.	1.13E-04	94.5817	1.20E+12
238.2407	59831.	0.00				
63.7840	-0.00631	119470.	-6511.	1.13E-04	86.6503	1.20E+12
231.9541	59959.	0.00				
63.9200	-0.00613	109153.	-6138.	1.14E-04	79.1669	1.20E+12
225.6286	60087.	0.00				
64.0560	-0.00594	99436.	-5775.	1.14E-04	72.1194	1.20E+12
219.2652	60215.	0.00				
64.1920	-0.00576	90303.	-5422.	1.14E-04	65.4955	1.20E+12
212.8646	60343.	0.00				
64.3280	-0.00557	81737.	-5080.	1.14E-04	59.2827	1.20E+12
206.4275	60470.	0.00				
64.4640	-0.00539	73721.	-4749.	1.14E-04	53.4688	1.20E+12
199.9545	60598.	0.00				
64.6000	-0.00520	66237.	-4428.	1.14E-04	48.0411	1.20E+12
193.4462	60726.	0.00				
64.7360	-0.00501	59269.	-4117.	1.14E-04	42.9871	1.20E+12
186.9033	60854.	0.00				
64.8720	-0.00483	52799.	-3818.	1.14E-04	38.2941	1.20E+12
180.3263	60982.	0.00				
65.0080	-0.00464	46808.	-3529.	1.14E-04	33.9495	1.20E+12
173.7156	61110.	0.00				
65.1440	-0.00445	41281.	-3251.	1.14E-04	29.9404	1.20E+12

167.0719	61237.	0.00				
65.2800	-0.00427	36198.	-2983.	1.15E-04	26.2541	1.20E+12
160.3954	61365.	0.00				
65.4160	-0.00408	31543.	-2727.	1.15E-04	22.8776	1.20E+12
153.6866	61493.	0.00				
65.5520	-0.00389	27297.	-2482.	1.15E-04	19.7981	1.20E+12
146.9459	61621.	0.00				
65.6880	-0.00370	23442.	-2248.	1.15E-04	17.0023	1.20E+12
140.1736	61749.	0.00				
65.8240	-0.00352	19961.	-2024.	1.15E-04	14.4774	1.20E+12
133.3700	61877.	0.00				
65.9600	-0.00333	16835.	-1812.	1.15E-04	12.2101	1.20E+12
126.5354	62005.	0.00				
66.0960	-0.00314	14046.	-1611.	1.15E-04	10.1872	1.20E+12
119.6701	62132.	0.00				
66.2320	-0.00296	11575.	-1422.	1.15E-04	8.3955	1.20E+12
112.7742	62260.	0.00				
66.3680	-0.00277	9406.	-1243.	1.15E-04	6.8217	1.20E+12
105.8481	62388.	0.00				
66.5040	-0.00258	7517.	-1076.	1.15E-04	5.4523	1.20E+12
98.8918	62516.	0.00				
66.6400	-0.00239	5893.	-920.503	1.15E-04	4.2740	1.20E+12
91.9055	62644.	0.00				
66.7760	-0.00221	4513.	-776.238	1.15E-04	3.2732	1.20E+12
84.8894	62772.	0.00				
66.9120	-0.00202	3359.	-643.448	1.15E-04	2.4364	1.20E+12
77.8436	62899.	0.00				
67.0480	-0.00183	2413.	-522.181	1.15E-04	1.7499	1.20E+12
70.7681	63027.	0.00				
67.1840	-0.00165	1655.	-412.485	1.15E-04	1.2002	1.20E+12
63.6631	63155.	0.00				
67.3200	-0.00146	1066.	-314.409	1.15E-04	0.7734	1.20E+12
56.5286	63283.	0.00				
67.4560	-0.00127	628.5349	-228.000	1.15E-04	0.4559	1.20E+12
49.3646	63411.	0.00				
67.5920	-0.00108	322.1780	-153.307	1.15E-04	0.2337	1.20E+12
42.1712	63539.	0.00				
67.7280	-8.96E-04	128.1411	-90.377	1.15E-04	0.09294	1.20E+12
34.9485	63666.	0.00				
67.8640	-7.09E-04	27.1869	-39.259	1.15E-04	0.01972	1.20E+12
27.6964	63794.	0.00				
68.0000	-5.21E-04	0.00	0.00	1.15E-04	0.00	1.20E+12
20.4150	31961.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

Pile-head deflection = 2.04539178 inches
 Computed slope at pile head = -0.0054199 radians
 Maximum bending moment = 18034186. inch-lbs
 Maximum shear force = 101432. lbs
 Depth of maximum bending moment = 31.28000000 feet below pile head
 Depth of maximum shear force = 16.72800000 feet below pile head
 Number of iterations = 27
 Number of zero deflection points = 1

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
		lbs	in-lbs	lbs	inches	radians	
1	V, lb	0.00	M, in-lb	0.00	2.0454	-0.00542	
		101432.	1.80E+07				

Maximum pile-head deflection = 2.0453917836 inches
 Maximum pile-head rotation = -0.0054198666 radians = -0.310535 deg.

The analysis ended normally.

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LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 24ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 24ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 24ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 24ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:40:25

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	22.50000	4.00000
3	25.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	----
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
----	-----	-----
1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	4.0303	0.03200	0.00	-0.00876	2.32E-05	1.20E+12	
-71.407	1922.	0.00					
0.1360	4.0160	-95.072	-105.896	-0.00876	0.06895	1.20E+12	
-58.364	5942.	0.00					
0.2720	4.0017	-345.613	-176.531	-0.00876	0.2507	1.20E+12	
-28.202	26505.	0.00					
0.4080	3.9874	-671.269	-154.751	-0.00876	0.4869	1.20E+12	
54.8933	7134.	0.00					
0.5440	3.9731	-850.719	-51.636	-0.00876	0.6170	1.20E+12	

71.4719	4344.	0.00				
0.6800	3.9589	-839.809	74.6192	-0.00876	0.6091	1.20E+12
83.2528	3302.	0.00				
0.8160	3.9446	-607.162	218.3546	-0.00876	0.4404	1.20E+12
92.8940	2735.	0.00				
0.9520	3.9303	-127.100	376.8098	-0.00876	0.09218	1.20E+12
101.2917	2371.	0.00				
1.0880	3.9160	622.7448	548.3013	-0.00876	0.4517	1.20E+12
108.8693	2114.	0.00				
1.2240	3.9017	1663.	731.6837	-0.00876	1.2058	1.20E+12
115.8638	1923.	0.00				
1.3600	3.8874	3011.	926.1253	-0.00876	2.1838	1.20E+12
122.4224	1774.	0.00				
1.4960	3.8731	4685.	1131.	-0.00876	3.3983	1.20E+12
128.6432	1654.	0.00				
1.6320	3.8588	6703.	1346.	-0.00876	4.8613	1.20E+12
134.5952	1556.	0.00				
1.7680	3.8445	9078.	1570.	-0.00876	6.5842	1.20E+12
140.3288	1473.	0.00				
1.9040	3.8302	11827.	1804.	-0.00876	8.5783	1.20E+12
145.8821	1402.	0.00				
2.0400	3.8159	14965.	2046.	-0.00876	10.8542	1.20E+12
151.2845	1341.	0.00				
2.1760	3.8016	18506.	2297.	-0.00876	13.4223	1.20E+12
156.5594	1288.	0.00				
2.3120	3.7873	22464.	2557.	-0.00876	16.2928	1.20E+12
161.7254	1241.	0.00				
2.4480	3.7730	26853.	2825.	-0.00876	19.4758	1.20E+12
166.7980	1199.	0.00				
2.5840	3.7587	31685.	3101.	-0.00876	22.9809	1.20E+12
171.7898	1162.	0.00				
2.7200	3.7444	36976.	3386.	-0.00876	26.8180	1.20E+12
176.7114	1129.	0.00				
2.8560	3.7302	42737.	3678.	-0.00876	30.9963	1.20E+12
181.5718	1098.	0.00				
2.9920	3.7159	48981.	3978.	-0.00876	35.5255	1.20E+12
186.3787	1070.	0.00				
3.1280	3.7016	55722.	4286.	-0.00876	40.4146	1.20E+12
191.1386	1045.	0.00				
3.2640	3.6873	62972.	4602.	-0.00876	45.6730	1.20E+12
195.8574	1022.	0.00				
3.4000	3.6730	70744.	4926.	-0.00876	51.3098	1.20E+12
200.5399	1001.	0.00				
3.5360	3.6587	79050.	5257.	-0.00876	57.3339	1.20E+12
205.1906	981.1257	0.00				
3.6720	3.6444	87902.	5595.	-0.00876	63.7544	1.20E+12
209.8132	962.9066	0.00				
3.8080	3.6301	97314.	5942.	-0.00876	70.5803	1.20E+12
214.4113	945.9875	0.00				
3.9440	3.6158	107296.	6295.	-0.00876	77.8203	1.20E+12

218.9878	930.2362	0.00				
4.0800	3.6015	117861.	6656.	-0.00876	85.4833	1.20E+12
223.5454	915.5381	0.00				
4.2160	3.5872	129022.	7025.	-0.00876	93.5782	1.20E+12
228.0867	901.7936	0.00				
4.3520	3.5729	140791.	7401.	-0.00876	102.1137	1.20E+12
232.6137	888.9153	0.00				
4.4880	3.5586	153179.	7784.	-0.00876	111.0985	1.20E+12
237.1286	876.8264	0.00				
4.6240	3.5444	166198.	8175.	-0.00876	120.5414	1.20E+12
241.6329	865.4591	0.00				
4.7600	3.5301	179861.	8573.	-0.00876	130.4511	1.20E+12
246.1285	854.7533	0.00				
4.8960	3.5158	194180.	8978.	-0.00876	140.8362	1.20E+12
250.6167	844.6554	0.00				
5.0320	3.5015	209166.	9391.	-0.00876	151.7055	1.20E+12
255.0990	835.1175	0.00				
5.1680	3.4872	224832.	9811.	-0.00876	163.0675	1.20E+12
259.5766	826.0970	0.00				
5.3040	3.4729	241189.	10238.	-0.00876	174.9310	1.20E+12
264.0506	817.5551	0.00				
5.4400	3.4586	258249.	10673.	-0.00875	187.3045	1.20E+12
268.5220	809.4574	0.00				
5.5760	3.4443	276024.	11115.	-0.00875	200.1968	1.20E+12
272.9918	801.7722	0.00				
5.7120	3.4300	294527.	11564.	-0.00875	213.6164	1.20E+12
277.4610	794.4713	0.00				
5.8480	3.4158	313768.	12020.	-0.00875	227.5721	1.20E+12
281.9303	787.5286	0.00				
5.9840	3.4015	333761.	12484.	-0.00875	242.0723	1.20E+12
286.4005	780.9208	0.00				
6.1200	3.3872	354516.	12955.	-0.00875	257.1258	1.20E+12
290.8723	774.6262	0.00				
6.2560	3.3729	376046.	13433.	-0.00875	272.7411	1.20E+12
295.3463	768.6253	0.00				
6.3920	3.3586	398362.	13919.	-0.00875	288.9271	1.20E+12
299.8233	762.8999	0.00				
6.5280	3.3443	421478.	14412.	-0.00875	305.6921	1.20E+12
304.3036	757.4335	0.00				
6.6640	3.3301	445403.	14912.	-0.00875	323.0451	1.20E+12
308.7879	752.2109	0.00				
6.8000	3.3158	470151.	15420.	-0.00875	340.9945	1.20E+12
313.2767	747.2181	0.00				
6.9360	3.3015	495734.	15935.	-0.00875	359.5491	1.20E+12
317.7704	742.4420	0.00				
7.0720	3.2872	522162.	16457.	-0.00875	378.7176	1.20E+12
322.2694	737.8706	0.00				
7.2080	3.2729	549450.	16987.	-0.00875	398.5086	1.20E+12
326.7742	733.4929	0.00				
7.3440	3.2587	577607.	17524.	-0.00875	418.9308	1.20E+12

331.2852	729.2985	0.00				
7.4800	3.2444	606647.	18068.	-0.00875	439.9930	1.20E+12
335.8026	725.2778	0.00				
7.6160	3.2301	636581.	18620.	-0.00875	461.7039	1.20E+12
340.3268	721.4219	0.00				
7.7520	3.2158	667422.	19179.	-0.00874	484.0722	1.20E+12
344.8582	717.7226	0.00				
7.8880	3.2016	699181.	19745.	-0.00874	507.1067	1.20E+12
349.3970	714.1720	0.00				
8.0240	3.1873	731871.	20319.	-0.00874	530.8161	1.20E+12
353.9435	710.7629	0.00				
8.1600	3.1730	765503.	20901.	-0.00874	555.2093	1.20E+12
358.4979	707.4886	0.00				
8.2960	3.1588	800090.	21489.	-0.00874	580.2950	1.20E+12
363.0606	704.3426	0.00				
8.4320	3.1445	835645.	22086.	-0.00874	606.0820	1.20E+12
367.6317	701.3192	0.00				
8.5680	3.1302	872178.	22689.	-0.00874	632.5792	1.20E+12
372.2115	698.4127	0.00				
8.7040	3.1160	909703.	23301.	-0.00874	659.7954	1.20E+12
376.8001	695.6178	0.00				
8.8400	3.1017	948231.	23919.	-0.00874	687.7395	1.20E+12
381.3978	692.9297	0.00				
8.9760	3.0875	987775.	24545.	-0.00873	716.4204	1.20E+12
386.0048	690.3438	0.00				
9.1120	3.0732	1028348.	25179.	-0.00873	745.8469	1.20E+12
390.6212	687.8556	0.00				
9.2480	3.0590	1069960.	25820.	-0.00873	776.0280	1.20E+12
395.2471	685.4610	0.00				
9.3840	3.0447	1112626.	26469.	-0.00873	806.9727	1.20E+12
399.8828	683.1562	0.00				
9.5200	3.0305	1156356.	27126.	-0.00873	838.6898	1.20E+12
404.5283	680.9376	0.00				
9.6560	3.0162	1201164.	27790.	-0.00873	871.1883	1.20E+12
409.1839	678.8016	0.00				
9.7920	3.0020	1247062.	28461.	-0.00873	904.4773	1.20E+12
413.8496	676.7449	0.00				
9.9280	2.9877	1294061.	29141.	-0.00872	938.5657	1.20E+12
418.5257	674.7646	0.00				
10.0640	2.9735	1342176.	29827.	-0.00872	973.4627	1.20E+12
423.2120	672.8576	0.00				
10.2000	2.9593	1391418.	30522.	-0.00872	1009.	1.20E+12
427.9089	671.0211	0.00				
10.3360	2.9450	1441799.	31224.	-0.00872	1046.	1.20E+12
432.6164	669.2526	0.00				
10.4720	2.9308	1493333.	31934.	-0.00872	1083.	1.20E+12
437.3346	667.5495	0.00				
10.6080	2.9166	1546032.	32652.	-0.00871	1121.	1.20E+12
442.0636	665.9094	0.00				
10.7440	2.9024	1599908.	33377.	-0.00871	1160.	1.20E+12

446.8035	664.3300	0.00				
10.8800	2.8882	1654974.	34110.	-0.00871	1200.	1.20E+12
451.5544	662.8093	0.00				
11.0160	2.8739	1711243.	34851.	-0.00871	1241.	1.20E+12
456.3163	661.3452	0.00				
11.1520	2.8597	1768727.	35599.	-0.00871	1283.	1.20E+12
461.0893	659.9357	0.00				
11.2880	2.8455	1827439.	36356.	-0.00870	1325.	1.20E+12
465.8735	658.5789	0.00				
11.4240	2.8313	1887392.	37120.	-0.00870	1369.	1.20E+12
470.6690	657.2731	0.00				
11.5600	2.8171	1948598.	37892.	-0.00870	1413.	1.20E+12
475.4758	656.0166	0.00				
11.6960	2.8029	2011071.	38672.	-0.00869	1459.	1.20E+12
480.2939	654.8078	0.00				
11.8320	2.7888	2074823.	39460.	-0.00869	1505.	1.20E+12
485.1235	653.6451	0.00				
11.9680	2.7746	2139868.	40255.	-0.00869	1552.	1.20E+12
489.9646	652.5271	0.00				
12.1040	2.7604	2206217.	41059.	-0.00869	1600.	1.20E+12
494.8172	651.4523	0.00				
12.2400	2.7462	2273884.	41870.	-0.00868	1649.	1.20E+12
499.6814	650.4195	0.00				
12.3760	2.7321	2342882.	42690.	-0.00868	1699.	1.20E+12
504.5572	649.4273	0.00				
12.5120	2.7179	2413224.	43517.	-0.00868	1750.	1.20E+12
509.4447	648.4745	0.00				
12.6480	2.7037	2484923.	44353.	-0.00867	1802.	1.20E+12
514.3438	647.5599	0.00				
12.7840	2.6896	2557991.	45196.	-0.00867	1855.	1.20E+12
519.2547	646.6824	0.00				
12.9200	2.6754	2632443.	46048.	-0.00867	1909.	1.20E+12
524.1773	645.8409	0.00				
13.0560	2.6613	2708291.	46907.	-0.00866	1964.	1.20E+12
529.1118	645.0344	0.00				
13.1920	2.6472	2785548.	47775.	-0.00866	2020.	1.20E+12
534.0580	644.2618	0.00				
13.3280	2.6330	2864227.	48650.	-0.00866	2077.	1.20E+12
539.0161	643.5223	0.00				
13.4640	2.6189	2944342.	49534.	-0.00865	2135.	1.20E+12
543.9860	642.8149	0.00				
13.6000	2.6048	3025906.	50426.	-0.00865	2195.	1.20E+12
548.9678	642.1387	0.00				
13.7360	2.5907	3108932.	51326.	-0.00864	2255.	1.20E+12
553.9615	641.4928	0.00				
13.8720	2.5766	3193434.	52234.	-0.00864	2316.	1.20E+12
558.9672	640.8766	0.00				
14.0080	2.5625	3279424.	53150.	-0.00863	2379.	1.20E+12
563.9847	640.2891	0.00				
14.1440	2.5484	3366916.	54075.	-0.00863	2442.	1.20E+12

569.0142	639.7297	0.00				
14.2800	2.5343	3455924.	55008.	-0.00863	2507.	1.20E+12
574.0556	639.1976	0.00				
14.4160	2.5202	3546461.	55949.	-0.00862	2572.	1.20E+12
579.1090	638.6922	0.00				
14.5520	2.5062	3638540.	56898.	-0.00862	2639.	1.20E+12
584.1744	638.2126	0.00				
14.6880	2.4921	3732176.	57855.	-0.00861	2707.	1.20E+12
589.2517	637.7584	0.00				
14.8240	2.4781	3827380.	58821.	-0.00861	2776.	1.20E+12
594.3410	637.3289	0.00				
14.9600	2.4640	3924168.	59795.	-0.00860	2846.	1.20E+12
599.4423	636.9235	0.00				
15.0960	2.4500	4022552.	60778.	-0.00859	2918.	1.20E+12
604.5556	636.5417	0.00				
15.2320	2.4360	4122546.	61769.	-0.00859	2990.	1.20E+12
609.6808	636.1828	0.00				
15.3680	2.4220	4224164.	62768.	-0.00858	3064.	1.20E+12
614.8180	635.8463	0.00				
15.5040	2.4080	4327420.	63775.	-0.00858	3139.	1.20E+12
619.9671	635.5318	0.00				
15.6400	2.3940	4432327.	64791.	-0.00857	3215.	1.20E+12
625.1282	635.2388	0.00				
15.7760	2.3800	4538899.	65816.	-0.00857	3292.	1.20E+12
630.3013	634.9666	0.00				
15.9120	2.3660	4647150.	66849.	-0.00856	3371.	1.20E+12
635.4863	634.7150	0.00				
16.0480	2.3521	4757093.	67890.	-0.00855	3450.	1.20E+12
640.6833	634.4835	0.00				
16.1840	2.3381	4868743.	68940.	-0.00855	3531.	1.20E+12
645.8922	634.2716	0.00				
16.3200	2.3242	4982113.	69998.	-0.00854	3613.	1.20E+12
651.1129	634.0789	0.00				
16.4560	2.3102	5097217.	71065.	-0.00853	3697.	1.20E+12
656.3456	633.9050	0.00				
16.5920	2.2963	5214069.	72141.	-0.00853	3782.	1.20E+12
661.5902	633.7495	0.00				
16.7280	2.2824	5332683.	73225.	-0.00852	3868.	1.20E+12
666.8466	633.6121	0.00				
16.8640	2.2685	5453074.	74317.	-0.00851	3955.	1.20E+12
672.1149	633.4925	0.00				
17.0000	2.2546	5575254.	75418.	-0.00850	4044.	1.20E+12
677.3950	633.3902	0.00				
17.1360	2.2407	5699239.	76528.	-0.00850	4134.	1.20E+12
682.6869	633.3049	0.00				
17.2720	2.2269	5825042.	77647.	-0.00849	4225.	1.20E+12
687.9906	633.2363	0.00				
17.4080	2.2130	5952678.	78774.	-0.00848	4317.	1.20E+12
693.3061	633.1841	0.00				
17.5440	2.1992	6082160.	79910.	-0.00847	4411.	1.20E+12

698.6333	633.1480	0.00				
17.6800	2.1854	6213502.	81054.	-0.00846	4507.	1.20E+12
703.9723	633.1277	0.00				
17.8160	2.1716	6346720.	82207.	-0.00846	4603.	1.20E+12
709.3229	633.1229	0.00				
17.9520	2.1578	6481827.	83369.	-0.00845	4701.	1.20E+12
714.6852	633.1334	0.00				
18.0880	2.1440	6618838.	84540.	-0.00844	4801.	1.20E+12
720.0591	633.1589	0.00				
18.2240	2.1302	6757766.	85720.	-0.00843	4901.	1.20E+12
725.4447	633.1991	0.00				
18.3600	2.1165	6898627.	86908.	-0.00842	5003.	1.20E+12
730.8418	633.2538	0.00				
18.4960	2.1028	7041434.	88105.	-0.00841	5107.	1.20E+12
736.2505	633.3227	0.00				
18.6320	2.0891	7186202.	89311.	-0.00840	5212.	1.20E+12
741.6707	633.4057	0.00				
18.7680	2.0753	7332945.	90526.	-0.00839	5318.	1.20E+12
747.1023	633.5024	0.00				
18.9040	2.0617	7481678.	91750.	-0.00838	5426.	1.20E+12
752.5455	633.6128	0.00				
19.0400	2.0480	7632416.	92982.	-0.00837	5536.	1.20E+12
758.0000	633.7366	0.00				
19.1760	2.0343	7785172.	94224.	-0.00836	5646.	1.20E+12
763.4659	633.8735	0.00				
19.3120	2.0207	7939962.	95474.	-0.00835	5759.	1.20E+12
768.9432	634.0234	0.00				
19.4480	2.0071	8096800.	96734.	-0.00834	5873.	1.20E+12
774.4317	634.1862	0.00				
19.5840	1.9935	8255700.	98002.	-0.00833	5988.	1.20E+12
779.9315	634.3616	0.00				
19.7200	1.9799	8416678.	99279.	-0.00832	6105.	1.20E+12
785.4426	634.5494	0.00				
19.8560	1.9664	8579748.	100566.	-0.00830	6223.	1.20E+12
790.9648	634.7496	0.00				
19.9920	1.9528	8744925.	101861.	-0.00829	6343.	1.20E+12
796.4981	634.9618	0.00				
20.1280	1.9393	8912222.	103165.	-0.00828	6464.	1.20E+12
802.0425	635.1861	0.00				
20.2640	1.9258	9081656.	104479.	-0.00827	6587.	1.20E+12
807.5980	635.4222	0.00				
20.4000	1.9123	9253241.	105801.	-0.00826	6711.	1.20E+12
813.1645	635.6699	0.00				
20.5360	1.8988	9426992.	107133.	-0.00824	6837.	1.20E+12
818.7419	635.9292	0.00				
20.6720	1.8854	9602924.	108474.	-0.00823	6965.	1.20E+12
824.3302	636.1999	0.00				
20.8080	1.8720	9781051.	109824.	-0.00822	7094.	1.20E+12
829.9294	636.4819	0.00				
20.9440	1.8586	9961388.	111183.	-0.00820	7225.	1.20E+12

835.5394	636.7751	0.00				
21.0800	1.8452	1.01E+07	112551.	-0.00819	7357.	1.20E+12
841.1601	637.0793	0.00				
21.2160	1.8319	1.03E+07	113928.	-0.00818	7491.	1.20E+12
846.7916	637.3944	0.00				
21.3520	1.8185	1.05E+07	115315.	-0.00816	7627.	1.20E+12
852.4336	637.7203	0.00				
21.4880	1.8052	1.07E+07	116711.	-0.00815	7764.	1.20E+12
858.0863	638.0569	0.00				
21.6240	1.7919	1.09E+07	118116.	-0.00813	7903.	1.20E+12
863.7495	638.4041	0.00				
21.7600	1.7787	1.11E+07	119530.	-0.00812	8044.	1.20E+12
869.4232	638.7618	0.00				
21.8960	1.7654	1.13E+07	120953.	-0.00810	8186.	1.20E+12
875.1073	639.1300	0.00				
22.0320	1.7522	1.15E+07	122386.	-0.00809	8330.	1.20E+12
880.8017	639.5084	0.00				
22.1680	1.7390	1.17E+07	123828.	-0.00807	8476.	1.20E+12
886.5065	639.8971	0.00				
22.3040	1.7259	1.19E+07	125280.	-0.00805	8623.	1.20E+12
892.2215	640.2959	0.00				
22.4400	1.7128	1.21E+07	126741.	-0.00804	8773.	1.20E+12
897.9467	640.7048	0.00				
22.5760	1.6996	1.23E+07	128200.	-0.00802	8923.	1.20E+12
890.2127	660.6712	0.00				
22.7120	1.6866	1.25E+07	129637.	-0.00800	9076.	1.20E+12
870.7675	699.7832	0.00				
22.8480	1.6735	1.27E+07	131041.	-0.00799	9230.	1.20E+12
849.7771	744.6189	0.00				
22.9840	1.6605	1.29E+07	132409.	-0.00797	9386.	1.20E+12
827.0133	796.6667	0.00				
23.1200	1.6475	1.32E+07	133738.	-0.00795	9544.	1.20E+12
802.1861	858.0062	0.00				
23.2560	1.6345	1.34E+07	135025.	-0.00793	9703.	1.20E+12
774.9178	931.6442	0.00				
23.3920	1.6216	1.36E+07	136265.	-0.00792	9863.	1.20E+12
744.7012	1022.	0.00				
23.5280	1.6087	1.38E+07	137453.	-0.00790	10025.	1.20E+12
710.8287	1137.	0.00				
23.6640	1.5958	1.40E+07	138582.	-0.00788	10189.	1.20E+12
672.2634	1287.	0.00				
23.8000	1.5830	1.43E+07	139642.	-0.00786	10354.	1.20E+12
627.3798	1498.	0.00				
23.9360	1.5702	1.45E+07	140622.	-0.00784	10519.	1.20E+12
573.3708	1816.	0.00				
24.0720	1.5574	1.47E+07	141502.	-0.00782	10686.	1.20E+12
504.5862	2376.	0.00				
24.2080	1.5447	1.50E+07	142244.	-0.00780	10854.	1.20E+12
405.8227	3721.	0.00				
24.3440	1.5319	1.52E+07	142700.	-0.00778	11023.	1.20E+12

152.7950	26564.	0.00				
24.4800	1.5193	1.54E+07	142503.	-0.00776	11192.	1.20E+12
-394.421	4042.	0.00				
24.6160	1.5066	1.57E+07	141770.	-0.00774	11361.	1.20E+12
-503.926	2508.	0.00				
24.7520	1.4940	1.59E+07	140885.	-0.00772	11528.	1.20E+12
-581.159	1910.	0.00				
24.8880	1.4814	1.61E+07	139885.	-0.00769	11694.	1.20E+12
-643.392	1578.	0.00				
25.0240	1.4689	1.64E+07	138792.	-0.00767	11859.	1.20E+12
-696.679	1363.	0.00				
25.1600	1.4564	1.66E+07	137616.	-0.00765	12023.	1.20E+12
-743.942	1210.	0.00				
25.2960	1.4439	1.68E+07	136367.	-0.00763	12185.	1.20E+12
-786.835	1096.	0.00				
25.4320	1.4315	1.70E+07	135051.	-0.00760	12345.	1.20E+12
-826.399	1006.	0.00				
25.5680	1.4191	1.72E+07	133686.	-0.00758	12504.	1.20E+12
-845.693	972.5557	0.00				
25.7040	1.4068	1.75E+07	132305.	-0.00756	12662.	1.20E+12
-846.742	982.3122	0.00				
25.8400	1.3945	1.77E+07	130923.	-0.00753	12818.	1.20E+12
-847.768	992.1869	0.00				
25.9760	1.3822	1.79E+07	129538.	-0.00751	12972.	1.20E+12
-848.771	1002.	0.00				
26.1120	1.3699	1.81E+07	128152.	-0.00748	13124.	1.20E+12
-849.751	1012.	0.00				
26.2480	1.3578	1.83E+07	126765.	-0.00746	13275.	1.20E+12
-850.707	1023.	0.00				
26.3840	1.3456	1.85E+07	125376.	-0.00743	13424.	1.20E+12
-851.640	1033.	0.00				
26.5200	1.3335	1.87E+07	123985.	-0.00741	13572.	1.20E+12
-852.549	1043.	0.00				
26.6560	1.3214	1.89E+07	122593.	-0.00738	13718.	1.20E+12
-853.435	1054.	0.00				
26.7920	1.3094	1.91E+07	121199.	-0.00736	13862.	1.20E+12
-854.297	1065.	0.00				
26.9280	1.2974	1.93E+07	119804.	-0.00733	14005.	1.20E+12
-855.135	1076.	0.00				
27.0640	1.2855	1.95E+07	118408.	-0.00730	14146.	1.20E+12
-855.949	1087.	0.00				
27.2000	1.2736	1.97E+07	117011.	-0.00728	14285.	1.20E+12
-856.738	1098.	0.00				
27.3360	1.2617	1.99E+07	115612.	-0.00725	14423.	1.20E+12
-857.504	1109.	0.00				
27.4720	1.2499	2.01E+07	114212.	-0.00722	14559.	1.20E+12
-858.246	1121.	0.00				
27.6080	1.2381	2.03E+07	112811.	-0.00720	14693.	1.20E+12
-858.963	1132.	0.00				
27.7440	1.2264	2.04E+07	111408.	-0.00717	14826.	1.20E+12

-859.655	1144.	0.00				
27.8800	1.2147	2.06E+07	110005.	-0.00714	14957.	1.20E+12
-860.323	1156.	0.00				
28.0160	1.2031	2.08E+07	108600.	-0.00711	15086.	1.20E+12
-860.967	1168.	0.00				
28.1520	1.1915	2.10E+07	107194.	-0.00708	15214.	1.20E+12
-861.585	1180.	0.00				
28.2880	1.1800	2.12E+07	105788.	-0.00706	15340.	1.20E+12
-862.179	1192.	0.00				
28.4240	1.1685	2.13E+07	104380.	-0.00703	15465.	1.20E+12
-862.748	1205.	0.00				
28.5600	1.1570	2.15E+07	102972.	-0.00700	15587.	1.20E+12
-863.292	1218.	0.00				
28.6960	1.1456	2.17E+07	101563.	-0.00697	15708.	1.20E+12
-863.810	1231.	0.00				
28.8320	1.1343	2.18E+07	100152.	-0.00694	15828.	1.20E+12
-864.304	1244.	0.00				
28.9680	1.1230	2.20E+07	98742.	-0.00691	15945.	1.20E+12
-864.772	1257.	0.00				
29.1040	1.1117	2.21E+07	97330.	-0.00688	16061.	1.20E+12
-865.214	1270.	0.00				
29.2400	1.1005	2.23E+07	95917.	-0.00685	16176.	1.20E+12
-865.631	1284.	0.00				
29.3760	1.0894	2.25E+07	94504.	-0.00682	16288.	1.20E+12
-866.023	1297.	0.00				
29.5120	1.0783	2.26E+07	93091.	-0.00679	16400.	1.20E+12
-866.388	1311.	0.00				
29.6480	1.0672	2.28E+07	91677.	-0.00676	16509.	1.20E+12
-866.728	1325.	0.00				
29.7840	1.0562	2.29E+07	90262.	-0.00673	16617.	1.20E+12
-867.042	1340.	0.00				
29.9200	1.0453	2.31E+07	88847.	-0.00669	16723.	1.20E+12
-867.330	1354.	0.00				
30.0560	1.0344	2.32E+07	87431.	-0.00666	16827.	1.20E+12
-867.592	1369.	0.00				
30.1920	1.0235	2.33E+07	86015.	-0.00663	16930.	1.20E+12
-867.827	1384.	0.00				
30.3280	1.0127	2.35E+07	84598.	-0.00660	17031.	1.20E+12
-868.036	1399.	0.00				
30.4640	1.0020	2.36E+07	83182.	-0.00657	17130.	1.20E+12
-868.219	1414.	0.00				
30.6000	0.9913	2.38E+07	81764.	-0.00654	17227.	1.20E+12
-868.375	1430.	0.00				
30.7360	0.9807	2.39E+07	80347.	-0.00650	17323.	1.20E+12
-868.504	1445.	0.00				
30.8720	0.9701	2.40E+07	78930.	-0.00647	17418.	1.20E+12
-868.607	1461.	0.00				
31.0080	0.9595	2.41E+07	77512.	-0.00644	17510.	1.20E+12
-868.683	1477.	0.00				
31.1440	0.9491	2.43E+07	76094.	-0.00640	17601.	1.20E+12

-868.732	1494.	0.00				
31.2800	0.9386	2.44E+07	74677.	-0.00637	17690.	1.20E+12
-868.754	1511.	0.00				
31.4160	0.9283	2.45E+07	73259.	-0.00634	17778.	1.20E+12
-868.749	1527.	0.00				
31.5520	0.9179	2.46E+07	71841.	-0.00630	17864.	1.20E+12
-868.716	1544.	0.00				
31.6880	0.9077	2.47E+07	70423.	-0.00627	17948.	1.20E+12
-868.657	1562.	0.00				
31.8240	0.8975	2.49E+07	69006.	-0.00624	18031.	1.20E+12
-868.569	1579.	0.00				
31.9600	0.8873	2.50E+07	67588.	-0.00620	18111.	1.20E+12
-868.455	1597.	0.00				
32.0960	0.8772	2.51E+07	66171.	-0.00617	18191.	1.20E+12
-868.312	1615.	0.00				
32.2320	0.8672	2.52E+07	64754.	-0.00614	18268.	1.20E+12
-868.142	1634.	0.00				
32.3680	0.8572	2.53E+07	63338.	-0.00610	18344.	1.20E+12
-867.944	1652.	0.00				
32.5040	0.8473	2.54E+07	61921.	-0.00607	18418.	1.20E+12
-867.718	1671.	0.00				
32.6400	0.8374	2.55E+07	60505.	-0.00603	18490.	1.20E+12
-867.464	1691.	0.00				
32.7760	0.8276	2.56E+07	59090.	-0.00600	18561.	1.20E+12
-867.182	1710.	0.00				
32.9120	0.8178	2.57E+07	57675.	-0.00596	18630.	1.20E+12
-866.871	1730.	0.00				
33.0480	0.8081	2.58E+07	56260.	-0.00593	18698.	1.20E+12
-866.532	1750.	0.00				
33.1840	0.7985	2.59E+07	54846.	-0.00589	18763.	1.20E+12
-866.165	1770.	0.00				
33.3200	0.7889	2.60E+07	53433.	-0.00586	18828.	1.20E+12
-865.769	1791.	0.00				
33.4560	0.7794	2.60E+07	52021.	-0.00582	18890.	1.20E+12
-865.344	1812.	0.00				
33.5920	0.7699	2.61E+07	50609.	-0.00579	18951.	1.20E+12
-864.891	1833.	0.00				
33.7280	0.7605	2.62E+07	49198.	-0.00575	19010.	1.20E+12
-864.408	1855.	0.00				
33.8640	0.7511	2.63E+07	47787.	-0.00571	19067.	1.20E+12
-863.897	1877.	0.00				
34.0000	0.7418	2.64E+07	46378.	-0.00568	19123.	1.20E+12
-863.357	1899.	0.00				
34.1360	0.7326	2.64E+07	44969.	-0.00564	19177.	1.20E+12
-862.787	1922.	0.00				
34.2720	0.7234	2.65E+07	43562.	-0.00561	19229.	1.20E+12
-862.188	1945.	0.00				
34.4080	0.7143	2.66E+07	42155.	-0.00557	19280.	1.20E+12
-861.559	1969.	0.00				
34.5440	0.7052	2.67E+07	40750.	-0.00553	19329.	1.20E+12

-860.901	1992.	0.00				
34.6800	0.6962	2.67E+07	39345.	-0.00550	19377.	1.20E+12
-860.213	2016.	0.00				
34.8160	0.6873	2.68E+07	37942.	-0.00546	19422.	1.20E+12
-859.496	2041.	0.00				
34.9520	0.6784	2.68E+07	36540.	-0.00543	19466.	1.20E+12
-858.748	2066.	0.00				
35.0880	0.6696	2.69E+07	35139.	-0.00539	19509.	1.20E+12
-857.971	2091.	0.00				
35.2240	0.6608	2.70E+07	33740.	-0.00535	19550.	1.20E+12
-857.163	2117.	0.00				
35.3600	0.6521	2.70E+07	32341.	-0.00532	19589.	1.20E+12
-856.325	2143.	0.00				
35.4960	0.6434	2.71E+07	30945.	-0.00528	19626.	1.20E+12
-855.457	2170.	0.00				
35.6320	0.6349	2.71E+07	29549.	-0.00524	19662.	1.20E+12
-854.559	2197.	0.00				
35.7680	0.6263	2.72E+07	28155.	-0.00521	19696.	1.20E+12
-853.629	2224.	0.00				
35.9040	0.6179	2.72E+07	26763.	-0.00517	19729.	1.20E+12
-852.669	2252.	0.00				
36.0400	0.6095	2.72E+07	25372.	-0.00513	19759.	1.20E+12
-851.679	2281.	0.00				
36.1760	0.6011	2.73E+07	23983.	-0.00509	19789.	1.20E+12
-850.657	2309.	0.00				
36.3120	0.5928	2.73E+07	22596.	-0.00506	19816.	1.20E+12
-849.604	2339.	0.00				
36.4480	0.5846	2.74E+07	21211.	-0.00502	19842.	1.20E+12
-846.857	2364.	0.00				
36.5840	0.5765	2.74E+07	19832.	-0.00498	19866.	1.20E+12
-843.910	2389.	0.00				
36.7200	0.5684	2.74E+07	18457.	-0.00495	19889.	1.20E+12
-840.945	2415.	0.00				
36.8560	0.5603	2.75E+07	17087.	-0.00491	19910.	1.20E+12
-837.964	2441.	0.00				
36.9920	0.5523	2.75E+07	15722.	-0.00487	19930.	1.20E+12
-834.965	2467.	0.00				
37.1280	0.5444	2.75E+07	14362.	-0.00483	19947.	1.20E+12
-831.949	2494.	0.00				
37.2640	0.5366	2.75E+07	13006.	-0.00480	19964.	1.20E+12
-828.916	2521.	0.00				
37.4000	0.5288	2.75E+07	11656.	-0.00476	19978.	1.20E+12
-825.866	2549.	0.00				
37.5360	0.5210	2.76E+07	10311.	-0.00472	19991.	1.20E+12
-822.798	2577.	0.00				
37.6720	0.5134	2.76E+07	8970.	-0.00468	20003.	1.20E+12
-819.712	2606.	0.00				
37.8080	0.5057	2.76E+07	7635.	-0.00465	20012.	1.20E+12
-816.610	2635.	0.00				
37.9440	0.4982	2.76E+07	6305.	-0.00461	20021.	1.20E+12

-813.489	2665.	0.00				
38.0800	0.4907	2.76E+07	4980.	-0.00457	20027.	1.20E+12
-810.352	2695.	0.00				
38.2160	0.4833	2.76E+07	3660.	-0.00453	20032.	1.20E+12
-807.196	2726.	0.00				
38.3520	0.4759	2.76E+07	2345.	-0.00450	20036.	1.20E+12
-804.023	2757.	0.00				
38.4880	0.4686	2.76E+07	1036.	-0.00446	20038.	1.20E+12
-800.833	2789.	0.00				
38.6240	0.4614	2.76E+07	-268.677	-0.00442	20038.	1.20E+12
-797.624	2821.	0.00				
38.7600	0.4542	2.76E+07	-1568.	-0.00438	20037.	1.20E+12
-794.398	2855.	0.00				
38.8960	0.4471	2.76E+07	-2862.	-0.00434	20035.	1.20E+12
-791.154	2888.	0.00				
39.0320	0.4400	2.76E+07	-4150.	-0.00431	20031.	1.20E+12
-787.892	2922.	0.00				
39.1680	0.4330	2.76E+07	-5433.	-0.00427	20025.	1.20E+12
-784.612	2957.	0.00				
39.3040	0.4261	2.76E+07	-6711.	-0.00423	20018.	1.20E+12
-781.315	2993.	0.00				
39.4400	0.4192	2.76E+07	-7983.	-0.00419	20009.	1.20E+12
-777.999	3029.	0.00				
39.5760	0.4124	2.76E+07	-9250.	-0.00416	19999.	1.20E+12
-774.665	3066.	0.00				
39.7120	0.4056	2.76E+07	-10512.	-0.00412	19987.	1.20E+12
-771.312	3103.	0.00				
39.8480	0.3989	2.75E+07	-11768.	-0.00408	19974.	1.20E+12
-767.942	3142.	0.00				
39.9840	0.3923	2.75E+07	-13018.	-0.00404	19959.	1.20E+12
-764.553	3181.	0.00				
40.1200	0.3857	2.75E+07	-14263.	-0.00401	19943.	1.20E+12
-761.146	3220.	0.00				
40.2560	0.3792	2.75E+07	-15503.	-0.00397	19925.	1.20E+12
-757.720	3261.	0.00				
40.3920	0.3728	2.74E+07	-16737.	-0.00393	19906.	1.20E+12
-754.276	3302.	0.00				
40.5280	0.3664	2.74E+07	-17965.	-0.00390	19886.	1.20E+12
-750.813	3344.	0.00				
40.6640	0.3600	2.74E+07	-19187.	-0.00386	19864.	1.20E+12
-747.331	3387.	0.00				
40.8000	0.3538	2.74E+07	-20404.	-0.00382	19840.	1.20E+12
-743.831	3431.	0.00				
40.9360	0.3476	2.73E+07	-21615.	-0.00378	19816.	1.20E+12
-740.312	3476.	0.00				
41.0720	0.3414	2.73E+07	-22820.	-0.00375	19789.	1.20E+12
-736.774	3522.	0.00				
41.2080	0.3353	2.72E+07	-24020.	-0.00371	19762.	1.20E+12
-733.216	3568.	0.00				
41.3440	0.3293	2.72E+07	-25214.	-0.00367	19732.	1.20E+12

-729.640	3616.	0.00				
41.4800	0.3234	2.72E+07	-26401.	-0.00364	19702.	1.20E+12
-726.044	3664.	0.00				
41.6160	0.3175	2.71E+07	-27583.	-0.00360	19670.	1.20E+12
-722.429	3714.	0.00				
41.7520	0.3116	2.71E+07	-28759.	-0.00356	19637.	1.20E+12
-718.794	3764.	0.00				
41.8880	0.3058	2.70E+07	-29930.	-0.00352	19602.	1.20E+12
-715.140	3816.	0.00				
42.0240	0.3001	2.70E+07	-31094.	-0.00349	19566.	1.20E+12
-711.466	3869.	0.00				
42.1600	0.2945	2.69E+07	-32252.	-0.00345	19528.	1.20E+12
-707.772	3923.	0.00				
42.2960	0.2888	2.69E+07	-33404.	-0.00341	19489.	1.20E+12
-704.058	3978.	0.00				
42.4320	0.2833	2.68E+07	-34550.	-0.00338	19449.	1.20E+12
-700.324	4034.	0.00				
42.5680	0.2778	2.68E+07	-35690.	-0.00334	19408.	1.20E+12
-696.570	4092.	0.00				
42.7040	0.2724	2.67E+07	-36823.	-0.00331	19365.	1.20E+12
-692.796	4151.	0.00				
42.8400	0.2670	2.66E+07	-37951.	-0.00327	19320.	1.20E+12
-689.000	4211.	0.00				
42.9760	0.2617	2.66E+07	-39072.	-0.00323	19275.	1.20E+12
-685.185	4272.	0.00				
43.1120	0.2565	2.65E+07	-40187.	-0.00320	19228.	1.20E+12
-681.348	4335.	0.00				
43.2480	0.2513	2.64E+07	-41296.	-0.00316	19180.	1.20E+12
-677.490	4400.	0.00				
43.3840	0.2462	2.64E+07	-42399.	-0.00312	19130.	1.20E+12
-673.612	4466.	0.00				
43.5200	0.2411	2.63E+07	-43495.	-0.00309	19079.	1.20E+12
-669.712	4533.	0.00				
43.6560	0.2361	2.62E+07	-44585.	-0.00305	19027.	1.20E+12
-665.790	4603.	0.00				
43.7920	0.2311	2.62E+07	-45668.	-0.00302	18974.	1.20E+12
-661.846	4673.	0.00				
43.9280	0.2262	2.61E+07	-46745.	-0.00298	18919.	1.20E+12
-657.881	4746.	0.00				
44.0640	0.2214	2.60E+07	-47815.	-0.00295	18863.	1.20E+12
-653.894	4820.	0.00				
44.2000	0.2166	2.59E+07	-48879.	-0.00291	18806.	1.20E+12
-649.884	4896.	0.00				
44.3360	0.2119	2.58E+07	-49936.	-0.00288	18747.	1.20E+12
-645.851	4974.	0.00				
44.4720	0.2072	2.58E+07	-50987.	-0.00284	18688.	1.20E+12
-641.796	5054.	0.00				
44.6080	0.2026	2.57E+07	-52031.	-0.00281	18627.	1.20E+12
-637.718	5137.	0.00				
44.7440	0.1981	2.56E+07	-53069.	-0.00277	18564.	1.20E+12

-633.616	5221.	0.00				
44.8800	0.1936	2.55E+07	-54099.	-0.00274	18501.	1.20E+12
-629.491	5307.	0.00				
45.0160	0.1891	2.54E+07	-55123.	-0.00270	18436.	1.20E+12
-625.341	5396.	0.00				
45.1520	0.1848	2.53E+07	-56140.	-0.00267	18371.	1.20E+12
-621.168	5487.	0.00				
45.2880	0.1804	2.52E+07	-57151.	-0.00263	18303.	1.20E+12
-616.970	5581.	0.00				
45.4240	0.1762	2.51E+07	-58154.	-0.00260	18235.	1.20E+12
-612.748	5677.	0.00				
45.5600	0.1719	2.50E+07	-59151.	-0.00256	18166.	1.20E+12
-608.500	5775.	0.00				
45.6960	0.1678	2.49E+07	-60140.	-0.00253	18095.	1.20E+12
-604.227	5877.	0.00				
45.8320	0.1637	2.49E+07	-61123.	-0.00250	18023.	1.20E+12
-599.928	5981.	0.00				
45.9680	0.1596	2.47E+07	-62098.	-0.00246	17950.	1.20E+12
-595.602	6089.	0.00				
46.1040	0.1557	2.46E+07	-63067.	-0.00243	17876.	1.20E+12
-591.250	6199.	0.00				
46.2400	0.1517	2.45E+07	-64028.	-0.00240	17801.	1.20E+12
-586.871	6313.	0.00				
46.3760	0.1478	2.44E+07	-64982.	-0.00236	17725.	1.20E+12
-582.465	6430.	0.00				
46.5120	0.1440	2.43E+07	-65929.	-0.00233	17647.	1.20E+12
-578.030	6551.	0.00				
46.6480	0.1402	2.42E+07	-66869.	-0.00230	17569.	1.20E+12
-573.567	6675.	0.00				
46.7840	0.1365	2.41E+07	-67802.	-0.00226	17489.	1.20E+12
-569.076	6804.	0.00				
46.9200	0.1328	2.40E+07	-68727.	-0.00223	17408.	1.20E+12
-564.554	6936.	0.00				
47.0560	0.1292	2.39E+07	-69644.	-0.00220	17326.	1.20E+12
-560.003	7072.	0.00				
47.1920	0.1257	2.38E+07	-70554.	-0.00217	17243.	1.20E+12
-555.421	7213.	0.00				
47.3280	0.1222	2.37E+07	-71457.	-0.00213	17159.	1.20E+12
-550.807	7359.	0.00				
47.4640	0.1187	2.35E+07	-72352.	-0.00210	17074.	1.20E+12
-546.162	7509.	0.00				
47.6000	0.1153	2.34E+07	-73240.	-0.00207	16988.	1.20E+12
-541.484	7664.	0.00				
47.7360	0.1119	2.33E+07	-74120.	-0.00204	16901.	1.20E+12
-536.773	7825.	0.00				
47.8720	0.1086	2.32E+07	-74992.	-0.00201	16813.	1.20E+12
-532.028	7991.	0.00				
48.0080	0.1054	2.31E+07	-76417.	-0.00197	16723.	1.20E+12
-1215.	18816.	0.00				
48.1440	0.1022	2.29E+07	-78392.	-0.00194	16632.	1.20E+12

-1205.	19238.	0.00				
48.2800	0.09906	2.28E+07	-80350.	-0.00191	16538.	1.20E+12
-1194.	19672.	0.00				
48.4160	0.09596	2.27E+07	-82289.	-0.00188	16441.	1.20E+12
-1183.	20118.	0.00				
48.5520	0.09292	2.25E+07	-84211.	-0.00185	16343.	1.20E+12
-1172.	20578.	0.00				
48.6880	0.08992	2.24E+07	-86113.	-0.00182	16242.	1.20E+12
-1160.	21051.	0.00				
48.8240	0.08698	2.23E+07	-87996.	-0.00179	16139.	1.20E+12
-1148.	21539.	0.00				
48.9600	0.08408	2.21E+07	-89860.	-0.00176	16034.	1.20E+12
-1136.	22041.	0.00				
49.0960	0.08124	2.20E+07	-91703.	-0.00173	15926.	1.20E+12
-1123.	22560.	0.00				
49.2320	0.07844	2.18E+07	-93525.	-0.00170	15817.	1.20E+12
-1110.	23095.	0.00				
49.3680	0.07569	2.17E+07	-95326.	-0.00167	15705.	1.20E+12
-1097.	23648.	0.00				
49.5040	0.07299	2.15E+07	-97104.	-0.00164	15591.	1.20E+12
-1083.	24219.	0.00				
49.6400	0.07034	2.13E+07	-98861.	-0.00161	15475.	1.20E+12
-1069.	24809.	0.00				
49.7760	0.06773	2.12E+07	-100594.	-0.00158	15357.	1.20E+12
-1055.	25420.	0.00				
49.9120	0.06517	2.10E+07	-102304.	-0.00155	15237.	1.20E+12
-1040.	26053.	0.00				
50.0480	0.06266	2.08E+07	-103990.	-0.00153	15115.	1.20E+12
-1025.	26708.	0.00				
50.1840	0.06019	2.07E+07	-105651.	-0.00150	14991.	1.20E+12
-1010.	27388.	0.00				
50.3200	0.05777	2.05E+07	-107286.	-0.00147	14865.	1.20E+12
-994.479	28093.	0.00				
50.4560	0.05540	2.03E+07	-108896.	-0.00144	14737.	1.20E+12
-978.481	28826.	0.00				
50.5920	0.05307	2.01E+07	-110480.	-0.00141	14607.	1.20E+12
-962.122	29589.	0.00				
50.7280	0.05078	2.00E+07	-112036.	-0.00139	14475.	1.20E+12
-945.393	30383.	0.00				
50.8640	0.04854	1.98E+07	-113565.	-0.00136	14342.	1.20E+12
-928.287	31210.	0.00				
51.0000	0.04634	1.96E+07	-115066.	-0.00133	14206.	1.20E+12
-910.796	32074.	0.00				
51.1360	0.04419	1.94E+07	-116538.	-0.00131	14069.	1.20E+12
-892.912	32976.	0.00				
51.2720	0.04208	1.92E+07	-117980.	-0.00128	13930.	1.20E+12
-874.622	33920.	0.00				
51.4080	0.04001	1.90E+07	-119392.	-0.00125	13790.	1.20E+12
-855.918	34910.	0.00				
51.5440	0.03799	1.88E+07	-120773.	-0.00123	13648.	1.20E+12

-836.784	35950.	0.00				
51.6800	0.03600	1.86E+07	-122123.	-0.00120	13504.	1.20E+12
-817.208	37043.	0.00				
51.8160	0.03406	1.84E+07	-123440.	-0.00118	13359.	1.20E+12
-797.173	38195.	0.00				
51.9520	0.03216	1.82E+07	-124725.	-0.00115	13212.	1.20E+12
-776.661	39413.	0.00				
52.0880	0.03030	1.80E+07	-125975.	-0.00113	13063.	1.20E+12
-755.652	40702.	0.00				
52.2240	0.02848	1.78E+07	-127191.	-0.00110	12914.	1.20E+12
-734.123	42070.	0.00				
52.3600	0.02670	1.76E+07	-128371.	-0.00108	12762.	1.20E+12
-712.047	43528.	0.00				
52.4960	0.02495	1.74E+07	-129514.	-0.00106	12610.	1.20E+12
-689.394	45086.	0.00				
52.6320	0.02325	1.72E+07	-130620.	-0.00103	12456.	1.20E+12
-666.129	46757.	0.00				
52.7680	0.02158	1.70E+07	-131688.	-0.00101	12300.	1.20E+12
-642.212	48556.	0.00				
52.9040	0.01996	1.67E+07	-132708.	-9.86E-04	12144.	1.20E+12
-608.144	49731.	0.00				
53.0400	0.01837	1.65E+07	-133662.	-9.64E-04	11986.	1.20E+12
-561.107	49859.	0.00				
53.1760	0.01681	1.63E+07	-134541.	-9.41E-04	11828.	1.20E+12
-514.944	49987.	0.00				
53.3120	0.01529	1.61E+07	-135344.	-9.19E-04	11668.	1.20E+12
-469.650	50115.	0.00				
53.4480	0.01381	1.59E+07	-136074.	-8.97E-04	11507.	1.20E+12
-425.217	50243.	0.00				
53.5840	0.01237	1.56E+07	-136733.	-8.76E-04	11346.	1.20E+12
-381.640	50371.	0.00				
53.7200	0.01095	1.54E+07	-137321.	-8.55E-04	11183.	1.20E+12
-338.911	50499.	0.00				
53.8560	0.00957	1.52E+07	-137839.	-8.34E-04	11021.	1.20E+12
-297.022	50626.	0.00				
53.9920	0.00823	1.50E+07	-138291.	-8.14E-04	10857.	1.20E+12
-255.967	50754.	0.00				
54.1280	0.00692	1.47E+07	-138676.	-7.93E-04	10693.	1.20E+12
-215.737	50882.	0.00				
54.2640	0.00564	1.45E+07	-138995.	-7.73E-04	10529.	1.20E+12
-176.325	51010.	0.00				
54.4000	0.00440	1.43E+07	-139252.	-7.54E-04	10364.	1.20E+12
-137.722	51138.	0.00				
54.5360	0.00318	1.41E+07	-139446.	-7.35E-04	10199.	1.20E+12
-99.921	51266.	0.00				
54.6720	0.00200	1.38E+07	-139579.	-7.16E-04	10034.	1.20E+12
-62.913	51393.	0.00				
54.8080	8.45E-04	1.36E+07	-139652.	-6.97E-04	9869.	1.20E+12
-26.690	51521.	0.00				
54.9440	-2.77E-04	1.34E+07	-139666.	-6.79E-04	9703.	1.20E+12

8.7583	51649.	0.00				
55.0800	-0.00137	1.32E+07	-139624.	-6.60E-04	9538.	1.20E+12
43.4398	51777.	0.00				
55.2160	-0.00243	1.29E+07	-139525.	-6.43E-04	9373.	1.20E+12
77.3638	51905.	0.00				
55.3520	-0.00347	1.27E+07	-139372.	-6.25E-04	9208.	1.20E+12
110.5396	52033.	0.00				
55.4880	-0.00447	1.25E+07	-139165.	-6.08E-04	9043.	1.20E+12
142.9765	52160.	0.00				
55.6240	-0.00545	1.22E+07	-138906.	-5.91E-04	8878.	1.20E+12
174.6843	52288.	0.00				
55.7600	-0.00640	1.20E+07	-138595.	-5.75E-04	8714.	1.20E+12
205.6724	52416.	0.00				
55.8960	-0.00733	1.18E+07	-138235.	-5.59E-04	8550.	1.20E+12
235.9508	52544.	0.00				
56.0320	-0.00823	1.16E+07	-137826.	-5.43E-04	8387.	1.20E+12
265.5292	52672.	0.00				
56.1680	-0.00910	1.13E+07	-137369.	-5.27E-04	8224.	1.20E+12
294.4179	52800.	0.00				
56.3040	-0.00995	1.11E+07	-136865.	-5.12E-04	8062.	1.20E+12
322.6269	52928.	0.00				
56.4400	-0.01077	1.09E+07	-136316.	-4.97E-04	7900.	1.20E+12
350.1664	53055.	0.00				
56.5760	-0.01157	1.07E+07	-135723.	-4.82E-04	7739.	1.20E+12
377.0467	53183.	0.00				
56.7120	-0.01235	1.04E+07	-135086.	-4.68E-04	7579.	1.20E+12
403.2784	53311.	0.00				
56.8480	-0.01310	1.02E+07	-134407.	-4.54E-04	7419.	1.20E+12
428.8719	53439.	0.00				
56.9840	-0.01383	1.00E+07	-133687.	-4.40E-04	7261.	1.20E+12
453.8377	53567.	0.00				
57.1200	-0.01453	9792974.	-132926.	-4.27E-04	7103.	1.20E+12
478.1865	53695.	0.00				
57.2560	-0.01522	9576675.	-132127.	-4.13E-04	6946.	1.20E+12
501.9290	53822.	0.00				
57.3920	-0.01588	9361713.	-131289.	-4.01E-04	6790.	1.20E+12
525.0761	53950.	0.00				
57.5280	-0.01653	9148149.	-130413.	-3.88E-04	6635.	1.20E+12
547.6384	54078.	0.00				
57.6640	-0.01715	8936044.	-129502.	-3.76E-04	6481.	1.20E+12
569.6269	54206.	0.00				
57.8000	-0.01775	8725456.	-128554.	-3.64E-04	6328.	1.20E+12
591.0524	54334.	0.00				
57.9360	-0.01834	8516442.	-127573.	-3.52E-04	6177.	1.20E+12
611.9260	54462.	0.00				
58.0720	-0.01890	8309059.	-126558.	-3.40E-04	6026.	1.20E+12
632.2585	54590.	0.00				
58.2080	-0.01945	8103359.	-125510.	-3.29E-04	5877.	1.20E+12
652.0611	54717.	0.00				
58.3440	-0.01998	7899396.	-124430.	-3.18E-04	5729.	1.20E+12

671.3446	54845.	0.00				
58.4800	-0.02049	7697221.	-123319.	-3.08E-04	5583.	1.20E+12
690.1201	54973.	0.00				
58.6160	-0.02098	7496884.	-122177.	-2.98E-04	5437.	1.20E+12
708.3987	55101.	0.00				
58.7520	-0.02146	7298433.	-121007.	-2.87E-04	5293.	1.20E+12
726.1913	55229.	0.00				
58.8880	-0.02192	7101917.	-119808.	-2.78E-04	5151.	1.20E+12
743.5091	55357.	0.00				
59.0240	-0.02237	6907381.	-118580.	-2.68E-04	5010.	1.20E+12
760.3630	55484.	0.00				
59.1600	-0.02279	6714871.	-117326.	-2.59E-04	4870.	1.20E+12
776.7641	55612.	0.00				
59.2960	-0.02321	6524429.	-116045.	-2.50E-04	4732.	1.20E+12
792.7233	55740.	0.00				
59.4320	-0.02361	6336099.	-114739.	-2.41E-04	4595.	1.20E+12
808.2516	55868.	0.00				
59.5680	-0.02400	6149921.	-113408.	-2.33E-04	4460.	1.20E+12
823.3600	55996.	0.00				
59.7040	-0.02437	5965936.	-112052.	-2.24E-04	4327.	1.20E+12
838.0594	56124.	0.00				
59.8400	-0.02473	5784184.	-110673.	-2.16E-04	4195.	1.20E+12
852.3606	56252.	0.00				
59.9760	-0.02508	5604701.	-109270.	-2.09E-04	4065.	1.20E+12
866.2745	56379.	0.00				
60.1120	-0.02541	5427526.	-107845.	-2.01E-04	3937.	1.20E+12
879.8118	56507.	0.00				
60.2480	-0.02573	5252694.	-106399.	-1.94E-04	3810.	1.20E+12
892.9833	56635.	0.00				
60.3840	-0.02604	5080241.	-104931.	-1.87E-04	3685.	1.20E+12
905.7997	56763.	0.00				
60.5200	-0.02634	4910200.	-103442.	-1.80E-04	3561.	1.20E+12
918.2715	56891.	0.00				
60.6560	-0.02663	4742604.	-101934.	-1.73E-04	3440.	1.20E+12
930.4093	57019.	0.00				
60.7920	-0.02691	4577487.	-100406.	-1.67E-04	3320.	1.20E+12
942.2236	57146.	0.00				
60.9280	-0.02718	4414880.	-98859.	-1.61E-04	3202.	1.20E+12
953.7247	57274.	0.00				
61.0640	-0.02743	4254812.	-97293.	-1.55E-04	3086.	1.20E+12
964.9230	57402.	0.00				
61.2000	-0.02768	4097315.	-95709.	-1.49E-04	2972.	1.20E+12
975.8287	57530.	0.00				
61.3360	-0.02792	3942417.	-94108.	-1.44E-04	2859.	1.20E+12
986.4519	57658.	0.00				
61.4720	-0.02815	3790145.	-92490.	-1.39E-04	2749.	1.20E+12
996.8026	57786.	0.00				
61.6080	-0.02837	3640529.	-90855.	-1.34E-04	2640.	1.20E+12
1007.	57913.	0.00				
61.7440	-0.02859	3493595.	-89204.	-1.29E-04	2534.	1.20E+12

1017.	58041.	0.00				
61.8800	-0.02879	3349369.	-87537.	-1.24E-04	2429.	1.20E+12
1026.	58169.	0.00				
62.0160	-0.02899	3207876.	-85854.	-1.20E-04	2327.	1.20E+12
1036.	58297.	0.00				
62.1520	-0.02919	3069141.	-84156.	-1.15E-04	2226.	1.20E+12
1045.	58425.	0.00				
62.2880	-0.02937	2933190.	-82444.	-1.11E-04	2127.	1.20E+12
1054.	58553.	0.00				
62.4240	-0.02955	2800045.	-80717.	-1.07E-04	2031.	1.20E+12
1062.	58681.	0.00				
62.5600	-0.02972	2669729.	-78976.	-1.04E-04	1936.	1.20E+12
1071.	58808.	0.00				
62.6960	-0.02989	2542267.	-77222.	-1.00E-04	1844.	1.20E+12
1079.	58936.	0.00				
62.8320	-0.03005	2417678.	-75453.	-9.68E-05	1754.	1.20E+12
1087.	59064.	0.00				
62.9680	-0.03020	2295986.	-73672.	-9.36E-05	1665.	1.20E+12
1095.	59192.	0.00				
63.1040	-0.03035	2177212.	-71878.	-9.05E-05	1579.	1.20E+12
1103.	59320.	0.00				
63.2400	-0.03050	2061376.	-70071.	-8.76E-05	1495.	1.20E+12
1111.	59448.	0.00				
63.3760	-0.03064	1948500.	-68252.	-8.49E-05	1413.	1.20E+12
1118.	59575.	0.00				
63.5120	-0.03078	1838602.	-66421.	-8.23E-05	1334.	1.20E+12
1126.	59703.	0.00				
63.6480	-0.03091	1731702.	-64577.	-7.99E-05	1256.	1.20E+12
1133.	59831.	0.00				
63.7840	-0.03104	1627821.	-62722.	-7.76E-05	1181.	1.20E+12
1140.	59959.	0.00				
63.9200	-0.03116	1526977.	-60856.	-7.55E-05	1107.	1.20E+12
1147.	60087.	0.00				
64.0560	-0.03128	1429188.	-58978.	-7.35E-05	1037.	1.20E+12
1154.	60215.	0.00				
64.1920	-0.03140	1334474.	-57088.	-7.16E-05	967.8763	1.20E+12
1161.	60343.	0.00				
64.3280	-0.03152	1242852.	-55188.	-6.98E-05	901.4240	1.20E+12
1168.	60470.	0.00				
64.4640	-0.03163	1154340.	-53277.	-6.82E-05	837.2275	1.20E+12
1174.	60598.	0.00				
64.6000	-0.03174	1068956.	-51355.	-6.67E-05	775.2998	1.20E+12
1181.	60726.	0.00				
64.7360	-0.03185	986718.	-49422.	-6.53E-05	715.6534	1.20E+12
1187.	60854.	0.00				
64.8720	-0.03195	907642.	-47479.	-6.40E-05	658.3010	1.20E+12
1194.	60982.	0.00				
65.0080	-0.03206	831747.	-45525.	-6.28E-05	603.2549	1.20E+12
1200.	61110.	0.00				
65.1440	-0.03216	759048.	-43561.	-6.17E-05	550.5275	1.20E+12

1207.	61237.	0.00					
	65.2800	-0.03226	689563.	-41587.	-6.08E-05	500.1311	1.20E+12
1213.	61365.	0.00					
	65.4160	-0.03236	623309.	-39602.	-5.99E-05	452.0776	1.20E+12
1219.	61493.	0.00					
	65.5520	-0.03245	560301.	-37608.	-5.91E-05	406.3793	1.20E+12
1225.	61621.	0.00					
	65.6880	-0.03255	500558.	-35603.	-5.83E-05	363.0480	1.20E+12
1232.	61749.	0.00					
	65.8240	-0.03264	444094.	-33588.	-5.77E-05	322.0956	1.20E+12
1238.	61877.	0.00					
	65.9600	-0.03274	390927.	-31563.	-5.71E-05	283.5341	1.20E+12
1244.	62005.	0.00					
	66.0960	-0.03283	341072.	-29528.	-5.66E-05	247.3752	1.20E+12
1250.	62132.	0.00					
	66.2320	-0.03292	294546.	-27484.	-5.62E-05	213.6307	1.20E+12
1256.	62260.	0.00					
	66.3680	-0.03301	251366.	-25429.	-5.58E-05	182.3124	1.20E+12
1262.	62388.	0.00					
	66.5040	-0.03310	211547.	-23364.	-5.55E-05	153.4319	1.20E+12
1268.	62516.	0.00					
	66.6400	-0.03319	175105.	-21290.	-5.52E-05	127.0011	1.20E+12
1274.	62644.	0.00					
	66.7760	-0.03328	142056.	-19206.	-5.50E-05	103.0315	1.20E+12
1280.	62772.	0.00					
	66.9120	-0.03337	112418.	-17111.	-5.49E-05	81.5350	1.20E+12
1286.	62899.	0.00					
	67.0480	-0.03346	86205.	-15007.	-5.47E-05	62.5233	1.20E+12
1292.	63027.	0.00					
	67.1840	-0.03355	63434.	-12893.	-5.46E-05	46.0079	1.20E+12
1298.	63155.	0.00					
	67.3200	-0.03364	44122.	-10769.	-5.45E-05	32.0008	1.20E+12
1304.	63283.	0.00					
	67.4560	-0.03373	28283.	-8635.	-5.45E-05	20.5136	1.20E+12
1311.	63411.	0.00					
	67.5920	-0.03382	15936.	-6491.	-5.45E-05	11.5582	1.20E+12
1317.	63539.	0.00					
	67.7280	-0.03391	7095.	-4338.	-5.45E-05	5.1462	1.20E+12
1323.	63666.	0.00					
	67.8640	-0.03400	1778.	-2174.	-5.44E-05	1.2895	1.20E+12
1329.	63794.	0.00					
	68.0000	-0.03409	0.00	0.00	-5.44E-05	0.00	1.20E+12
1335.	31961.	0.00					

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          = 4.03032440 inches
Computed slope at pile head  = -0.0087586 radians
Maximum bending moment       = 27628239. inch-lbs
Maximum shear force          = 142700. lbs
Depth of maximum bending moment = 38.62400000 feet below pile head
Depth of maximum shear force  = 24.34400000 feet below pile head
Number of iterations         = 26
Number of zero deflection points = 1
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
No.		1	2	lbs	inches	radians	
1	V, lb	0.00	M, in-lb	0.00	4.0303	-0.00876	
		142700.	2.76E+07				

```

Maximum pile-head deflection = 4.0303244021 inches
Maximum pile-head rotation   = -0.0087585504 radians = -0.501828 deg.
  
```

The analysis ended normally.

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LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 32ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 32ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 32ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 32ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:42:13

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----------------------------------	---------------------------------------	----------------------	------------------------------	-----------------	------------------------------

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	30.50000	4.00000
3	33.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	----
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
----	-----	-----
1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	4.8124	8.00E-04	1.23E-04	-0.00854	5.80E-07	1.20E+12	
-213.629	214.5643	0.00					
0.1360	4.7985	-284.461	-349.480	-0.00854	0.2063	1.20E+12	
-214.666	438.7377	0.00					
0.2720	4.7846	-1141.	-700.639	-0.00854	0.8273	1.20E+12	
-215.665	448.6100	0.00					
0.4080	4.7706	-2571.	-1053.	-0.00854	1.8650	1.20E+12	
-216.625	458.7581	0.00					
0.5440	4.7567	-4579.	-1408.	-0.00854	3.3211	1.20E+12	

-217.546	469.1948	0.00				
0.6800	4.7428	-7166.	-1763.	-0.00854	5.1974	1.20E+12
-218.426	479.9343	0.00				
0.8160	4.7288	-10335.	-2121.	-0.00854	7.4957	1.20E+12
-219.265	490.9913	0.00				
0.9520	4.7149	-14088.	-2479.	-0.00854	10.2175	1.20E+12
-220.061	502.3819	0.00				
1.0880	4.7009	-18426.	-2839.	-0.00854	13.3645	1.20E+12
-220.813	514.1233	0.00				
1.2240	4.6870	-23353.	-3200.	-0.00854	16.9380	1.20E+12
-221.520	526.2336	0.00				
1.3600	4.6731	-28870.	-3562.	-0.00854	20.9394	1.20E+12
-222.180	538.7327	0.00				
1.4960	4.6591	-34979.	-3925.	-0.00854	25.3700	1.20E+12
-222.792	551.6419	0.00				
1.6320	4.6452	-41681.	-4289.	-0.00854	30.2310	1.20E+12
-223.355	564.9840	0.00				
1.7680	4.6312	-48979.	-4654.	-0.00854	35.5235	1.20E+12
-223.867	578.7838	0.00				
1.9040	4.6173	-56872.	-5020.	-0.00854	41.2484	1.20E+12
-224.327	593.0681	0.00				
2.0400	4.6034	-65363.	-5386.	-0.00854	47.4066	1.20E+12
-224.732	607.8657	0.00				
2.1760	4.5894	-74452.	-5753.	-0.00854	53.9990	1.20E+12
-225.081	623.2083	0.00				
2.3120	4.5755	-84141.	-6121.	-0.00854	61.0262	1.20E+12
-225.372	639.1299	0.00				
2.4480	4.5615	-94430.	-6489.	-0.00854	68.4887	1.20E+12
-225.603	655.6680	0.00				
2.5840	4.5476	-105320.	-6857.	-0.00854	76.3871	1.20E+12
-225.773	672.8631	0.00				
2.7200	4.5337	-116811.	-7226.	-0.00854	84.7216	1.20E+12
-225.877	690.7600	0.00				
2.8560	4.5197	-128904.	-7594.	-0.00854	93.4924	1.20E+12
-225.915	709.4076	0.00				
2.9920	4.5058	-141599.	-7963.	-0.00854	102.6996	1.20E+12
-225.884	728.8595	0.00				
3.1280	4.4918	-154895.	-8331.	-0.00854	112.3432	1.20E+12
-225.780	749.1751	0.00				
3.2640	4.4779	-168792.	-8700.	-0.00854	122.4230	1.20E+12
-225.601	770.4201	0.00				
3.4000	4.4640	-183291.	-9068.	-0.00854	132.9385	1.20E+12
-225.344	792.6670	0.00				
3.5360	4.4500	-198390.	-9435.	-0.00854	143.8894	1.20E+12
-225.005	815.9967	0.00				
3.6720	4.4361	-214088.	-9802.	-0.00854	155.2749	1.20E+12
-224.581	840.4995	0.00				
3.8080	4.4221	-230384.	-10168.	-0.00854	167.0942	1.20E+12
-224.068	866.2764	0.00				
3.9440	4.4082	-247276.	-10533.	-0.00854	179.3464	1.20E+12

-223.460	893.4408	0.00				
4.0800	4.3942	-264765.	-10897.	-0.00854	192.0302	1.20E+12
-222.755	922.1208	0.00				
4.2160	4.3803	-282846.	-11260.	-0.00854	205.1444	1.20E+12
-221.946	952.4616	0.00				
4.3520	4.3663	-301518.	-11622.	-0.00855	218.6873	1.20E+12
-221.027	984.6280	0.00				
4.4880	4.3524	-320779.	-11982.	-0.00855	232.6571	1.20E+12
-219.994	1019.	0.00				
4.6240	4.3385	-340627.	-12340.	-0.00855	247.0520	1.20E+12
-218.839	1055.	0.00				
4.7600	4.3245	-361057.	-12696.	-0.00855	261.8695	1.20E+12
-217.554	1094.	0.00				
4.8960	4.3106	-382066.	-13050.	-0.00855	277.1074	1.20E+12
-216.132	1136.	0.00				
5.0320	4.2966	-403651.	-13401.	-0.00855	292.7627	1.20E+12
-214.563	1181.	0.00				
5.1680	4.2827	-425807.	-13750.	-0.00855	308.8326	1.20E+12
-212.837	1229.	0.00				
5.3040	4.2687	-448531.	-14096.	-0.00855	325.3135	1.20E+12
-210.942	1281.	0.00				
5.4400	4.2548	-471816.	-14438.	-0.00855	342.2020	1.20E+12
-208.865	1338.	0.00				
5.5760	4.2408	-495658.	-14777.	-0.00855	359.4939	1.20E+12
-206.590	1400.	0.00				
5.7120	4.2268	-520049.	-15112.	-0.00855	377.1850	1.20E+12
-204.101	1468.	0.00				
5.8480	4.2129	-544985.	-15443.	-0.00855	395.2703	1.20E+12
-201.377	1544.	0.00				
5.9840	4.1989	-570456.	-15770.	-0.00855	413.7446	1.20E+12
-198.395	1628.	0.00				
6.1200	4.1850	-596457.	-16091.	-0.00855	432.6021	1.20E+12
-195.125	1722.	0.00				
6.2560	4.1710	-622976.	-16406.	-0.00855	451.8366	1.20E+12
-191.536	1828.	0.00				
6.3920	4.1571	-650006.	-16716.	-0.00855	471.4411	1.20E+12
-187.584	1949.	0.00				
6.5280	4.1431	-677536.	-17018.	-0.00856	491.4079	1.20E+12
-183.220	2090.	0.00				
6.6640	4.1291	-705554.	-17313.	-0.00856	511.7287	1.20E+12
-178.379	2254.	0.00				
6.8000	4.1152	-734046.	-17600.	-0.00856	532.3941	1.20E+12
-172.978	2451.	0.00				
6.9360	4.1012	-763000.	-17877.	-0.00856	553.3936	1.20E+12
-166.907	2692.	0.00				
7.0720	4.0872	-792398.	-18144.	-0.00856	574.7155	1.20E+12
-160.012	2994.	0.00				
7.2080	4.0733	-822222.	-18399.	-0.00856	596.3465	1.20E+12
-152.071	3388.	0.00				
7.3440	4.0593	-852451.	-18639.	-0.00856	618.2713	1.20E+12

-142.745	3929.	0.00				
7.4800	4.0453	-883060.	-18863.	-0.00856	640.4719	1.20E+12
-131.456	4734.	0.00				
7.6160	4.0313	-914020.	-19066.	-0.00856	662.9264	1.20E+12
-117.090	6097.	0.00				
7.7520	4.0174	-945291.	-19240.	-0.00857	685.6071	1.20E+12
-96.863	9105.	0.00				
7.8880	4.0034	-976820.	-19366.	-0.00857	708.4749	1.20E+12
-56.611	27311.	0.00				
8.0240	3.9894	-1008500.	-19344.	-0.00857	731.4520	1.20E+12
83.2801	12823.	0.00				
8.1600	3.9754	-1039959.	-19185.	-0.00857	754.2683	1.20E+12
111.0367	7371.	0.00				
8.2960	3.9614	-1071121.	-18989.	-0.00857	776.8701	1.20E+12
129.9311	5498.	0.00				
8.4320	3.9474	-1101938.	-18764.	-0.00857	799.2208	1.20E+12
145.0524	4504.	0.00				
8.5680	3.9334	-1132368.	-18517.	-0.00857	821.2914	1.20E+12
158.0096	3875.	0.00				
8.7040	3.9195	-1162377.	-18250.	-0.00858	843.0568	1.20E+12
169.5445	3435.	0.00				
8.8400	3.9055	-1191935.	-17964.	-0.00858	864.4946	1.20E+12
180.0664	3108.	0.00				
8.9760	3.8915	-1221013.	-17663.	-0.00858	885.5846	1.20E+12
189.8281	2854.	0.00				
9.1120	3.8775	-1249585.	-17345.	-0.00858	906.3079	1.20E+12
198.9970	2650.	0.00				
9.2480	3.8635	-1277628.	-17013.	-0.00858	926.6468	1.20E+12
207.6908	2482.	0.00				
9.3840	3.8494	-1305117.	-16668.	-0.00858	946.5844	1.20E+12
215.9953	2341.	0.00				
9.5200	3.8354	-1332031.	-16309.	-0.00859	966.1048	1.20E+12
223.9751	2221.	0.00				
9.6560	3.8214	-1358349.	-15937.	-0.00859	985.1926	1.20E+12
231.6804	2117.	0.00				
9.7920	3.8074	-1384049.	-15553.	-0.00859	1004.	1.20E+12
239.1509	2026.	0.00				
9.9280	3.7934	-1409113.	-15156.	-0.00859	1022.	1.20E+12
246.4185	1946.	0.00				
10.0640	3.7794	-1433520.	-14749.	-0.00859	1040.	1.20E+12
253.5093	1875.	0.00				
10.2000	3.7653	-1457252.	-14329.	-0.00860	1057.	1.20E+12
260.4452	1811.	0.00				
10.3360	3.7513	-1480290.	-13899.	-0.00860	1074.	1.20E+12
267.2442	1754.	0.00				
10.4720	3.7373	-1502617.	-13457.	-0.00860	1090.	1.20E+12
273.9217	1702.	0.00				
10.6080	3.7232	-1524214.	-13005.	-0.00860	1105.	1.20E+12
280.4910	1654.	0.00				
10.7440	3.7092	-1545064.	-12542.	-0.00860	1121.	1.20E+12

286.9635	1610.	0.00				
10.8800	3.6952	-1565149.	-12068.	-0.00861	1135.	1.20E+12
293.3489	1570.	0.00				
11.0160	3.6811	-1584454.	-11584.	-0.00861	1149.	1.20E+12
299.6560	1534.	0.00				
11.1520	3.6671	-1602960.	-11090.	-0.00861	1163.	1.20E+12
305.8923	1499.	0.00				
11.2880	3.6530	-1620651.	-10586.	-0.00861	1175.	1.20E+12
312.0646	1468.	0.00				
11.4240	3.6390	-1637512.	-10071.	-0.00861	1188.	1.20E+12
318.1787	1438.	0.00				
11.5600	3.6249	-1653524.	-9547.	-0.00862	1199.	1.20E+12
324.2401	1411.	0.00				
11.6960	3.6108	-1668674.	-9013.	-0.00862	1210.	1.20E+12
330.2535	1385.	0.00				
11.8320	3.5968	-1682943.	-8469.	-0.00862	1221.	1.20E+12
336.2232	1361.	0.00				
11.9680	3.5827	-1696317.	-7916.	-0.00862	1230.	1.20E+12
342.1531	1338.	0.00				
12.1040	3.5686	-1708780.	-7353.	-0.00863	1239.	1.20E+12
348.0467	1317.	0.00				
12.2400	3.5545	-1720316.	-6780.	-0.00863	1248.	1.20E+12
353.9072	1297.	0.00				
12.3760	3.5405	-1730909.	-6197.	-0.00863	1255.	1.20E+12
359.7374	1278.	0.00				
12.5120	3.5264	-1740544.	-5606.	-0.00863	1262.	1.20E+12
365.5402	1260.	0.00				
12.6480	3.5123	-1749206.	-5004.	-0.00864	1269.	1.20E+12
371.3178	1242.	0.00				
12.7840	3.4982	-1756878.	-4394.	-0.00864	1274.	1.20E+12
377.0726	1226.	0.00				
12.9200	3.4841	-1763547.	-3774.	-0.00864	1279.	1.20E+12
382.8066	1211.	0.00				
13.0560	3.4700	-1769195.	-3144.	-0.00864	1283.	1.20E+12
388.5217	1196.	0.00				
13.1920	3.4559	-1773809.	-2505.	-0.00864	1287.	1.20E+12
394.2197	1182.	0.00				
13.3280	3.4418	-1777373.	-1857.	-0.00865	1289.	1.20E+12
399.9022	1169.	0.00				
13.4640	3.4276	-1779872.	-1200.	-0.00865	1291.	1.20E+12
405.5707	1156.	0.00				
13.6000	3.4135	-1781291.	-533.664	-0.00865	1292.	1.20E+12
411.2267	1144.	0.00				
13.7360	3.3994	-1781614.	142.0643	-0.00865	1292.	1.20E+12
416.8714	1133.	0.00				
13.8720	3.3853	-1780827.	826.9960	-0.00866	1292.	1.20E+12
422.5060	1122.	0.00				
14.0080	3.3712	-1778914.	1521.	-0.00866	1290.	1.20E+12
428.1317	1111.	0.00				
14.1440	3.3570	-1775862.	2224.	-0.00866	1288.	1.20E+12

433.7496	1101.	0.00				
14.2800	3.3429	-1771654.	2937.	-0.00866	1285.	1.20E+12
439.3607	1091.	0.00				
14.4160	3.3287	-1766276.	3658.	-0.00867	1281.	1.20E+12
444.9659	1082.	0.00				
14.5520	3.3146	-1759713.	4389.	-0.00867	1276.	1.20E+12
450.5660	1073.	0.00				
14.6880	3.3004	-1751949.	5129.	-0.00867	1271.	1.20E+12
456.1619	1064.	0.00				
14.8240	3.2863	-1742971.	5878.	-0.00867	1264.	1.20E+12
461.7545	1056.	0.00				
14.9600	3.2721	-1732763.	6636.	-0.00868	1257.	1.20E+12
467.3443	1048.	0.00				
15.0960	3.2580	-1721310.	7404.	-0.00868	1248.	1.20E+12
472.9322	1040.	0.00				
15.2320	3.2438	-1708598.	8180.	-0.00868	1239.	1.20E+12
478.5186	1033.	0.00				
15.3680	3.2296	-1694611.	8965.	-0.00868	1229.	1.20E+12
484.1044	1026.	0.00				
15.5040	3.2155	-1679335.	9760.	-0.00869	1218.	1.20E+12
489.6900	1019.	0.00				
15.6400	3.2013	-1662754.	10564.	-0.00869	1206.	1.20E+12
495.2760	1012.	0.00				
15.7760	3.1871	-1644855.	11377.	-0.00869	1193.	1.20E+12
500.8630	1006.	0.00				
15.9120	3.1729	-1625621.	12199.	-0.00869	1179.	1.20E+12
506.4513	999.3403	0.00				
16.0480	3.1587	-1605038.	13030.	-0.00869	1164.	1.20E+12
512.0415	993.3319	0.00				
16.1840	3.1445	-1583092.	13870.	-0.00870	1148.	1.20E+12
517.6341	987.5232	0.00				
16.3200	3.1304	-1559767.	14719.	-0.00870	1131.	1.20E+12
523.2293	981.9052	0.00				
16.4560	3.1162	-1535048.	15578.	-0.00870	1113.	1.20E+12
528.8278	976.4696	0.00				
16.5920	3.1020	-1508921.	16445.	-0.00870	1094.	1.20E+12
534.4297	971.2086	0.00				
16.7280	3.0878	-1481371.	17322.	-0.00870	1074.	1.20E+12
540.0355	966.1148	0.00				
16.8640	3.0735	-1452382.	18208.	-0.00871	1053.	1.20E+12
545.6456	961.1812	0.00				
17.0000	3.0593	-1421940.	19103.	-0.00871	1031.	1.20E+12
551.2602	956.4013	0.00				
17.1360	3.0451	-1390029.	20007.	-0.00871	1008.	1.20E+12
556.8796	951.7688	0.00				
17.2720	3.0309	-1356636.	20921.	-0.00871	983.9501	1.20E+12
562.5043	947.2779	0.00				
17.4080	3.0167	-1321744.	21843.	-0.00871	958.6436	1.20E+12
568.1343	942.9230	0.00				
17.5440	3.0025	-1285339.	22775.	-0.00872	932.2395	1.20E+12

573.7701	938.6988	0.00				
17.6800	2.9882	-1247406.	23716.	-0.00872	904.7271	1.20E+12
579.4119	934.6004	0.00				
17.8160	2.9740	-1207930.	24666.	-0.00872	876.0954	1.20E+12
585.0599	930.6230	0.00				
17.9520	2.9598	-1166895.	25626.	-0.00872	846.3336	1.20E+12
590.7143	926.7622	0.00				
18.0880	2.9455	-1124287.	26594.	-0.00872	815.4306	1.20E+12
596.3754	923.0136	0.00				
18.2240	2.9313	-1080091.	27572.	-0.00872	783.3755	1.20E+12
602.0433	919.3733	0.00				
18.3600	2.9171	-1034291.	28560.	-0.00873	750.1575	1.20E+12
607.7184	915.8373	0.00				
18.4960	2.9028	-986872.	29556.	-0.00873	715.7655	1.20E+12
613.4007	912.4020	0.00				
18.6320	2.8886	-937820.	30562.	-0.00873	680.1886	1.20E+12
619.0905	909.0640	0.00				
18.7680	2.8743	-887119.	31577.	-0.00873	643.4157	1.20E+12
624.7880	905.8198	0.00				
18.9040	2.8601	-834754.	32601.	-0.00873	605.4359	1.20E+12
630.4933	902.6663	0.00				
19.0400	2.8458	-780709.	33635.	-0.00873	566.2382	1.20E+12
636.2065	899.6005	0.00				
19.1760	2.8316	-724970.	34678.	-0.00873	525.8115	1.20E+12
641.9279	896.6195	0.00				
19.3120	2.8173	-667522.	35730.	-0.00873	484.1447	1.20E+12
647.6575	893.7206	0.00				
19.4480	2.8031	-608348.	36792.	-0.00873	441.2268	1.20E+12
653.3956	890.9011	0.00				
19.5840	2.7888	-547434.	37863.	-0.00874	397.0468	1.20E+12
659.1422	888.1584	0.00				
19.7200	2.7746	-484765.	38943.	-0.00874	351.5934	1.20E+12
664.8975	885.4903	0.00				
19.8560	2.7603	-420324.	40033.	-0.00874	304.8556	1.20E+12
670.6616	882.8943	0.00				
19.9920	2.7460	-354098.	41132.	-0.00874	256.8223	1.20E+12
676.4346	880.3684	0.00				
20.1280	2.7318	-286069.	42241.	-0.00874	207.4823	1.20E+12
682.2166	877.9103	0.00				
20.2640	2.7175	-216224.	43359.	-0.00874	156.8244	1.20E+12
688.0078	875.5180	0.00				
20.4000	2.7033	-144546.	44486.	-0.00874	104.8374	1.20E+12
693.8082	873.1897	0.00				
20.5360	2.6890	-71020.	45623.	-0.00874	51.5102	1.20E+12
699.6179	870.9234	0.00				
20.6720	2.6747	4369.	46770.	-0.00874	3.1685	1.20E+12
705.4371	868.7174	0.00				
20.8080	2.6605	81637.	47926.	-0.00874	59.2099	1.20E+12
711.2658	866.5700	0.00				
20.9440	2.6462	160799.	49092.	-0.00874	116.6254	1.20E+12

717.1040	864.4795	0.00				
21.0800	2.6320	241871.	50267.	-0.00874	175.4260	1.20E+12
722.9520	862.4443	0.00				
21.2160	2.6177	324869.	51451.	-0.00874	235.6233	1.20E+12
728.8096	860.4630	0.00				
21.3520	2.6034	409808.	52645.	-0.00874	297.2284	1.20E+12
734.6771	858.5340	0.00				
21.4880	2.5892	496704.	53849.	-0.00874	360.2527	1.20E+12
740.5545	856.6560	0.00				
21.6240	2.5749	585572.	55063.	-0.00874	424.7076	1.20E+12
746.4418	854.8277	0.00				
21.7600	2.5607	676428.	56286.	-0.00873	490.6044	1.20E+12
752.3392	853.0477	0.00				
21.8960	2.5464	769288.	57518.	-0.00873	557.9546	1.20E+12
758.2465	851.3147	0.00				
22.0320	2.5322	864168.	58761.	-0.00873	626.7694	1.20E+12
764.1640	849.6277	0.00				
22.1680	2.5179	961083.	60012.	-0.00873	697.0605	1.20E+12
770.0917	847.9854	0.00				
22.3040	2.5037	1060048.	61274.	-0.00873	768.8392	1.20E+12
776.0296	846.3867	0.00				
22.4400	2.4894	1161081.	62545.	-0.00873	842.1170	1.20E+12
781.9777	844.8306	0.00				
22.5760	2.4752	1264197.	63827.	-0.00873	916.9053	1.20E+12
787.9361	843.3160	0.00				
22.7120	2.4609	1369411.	65117.	-0.00873	993.2158	1.20E+12
793.9048	841.8419	0.00				
22.8480	2.4467	1476740.	66418.	-0.00872	1071.	1.20E+12
799.8840	840.4074	0.00				
22.9840	2.4325	1586199.	67728.	-0.00872	1150.	1.20E+12
805.8735	839.0115	0.00				
23.1200	2.4182	1697804.	69048.	-0.00872	1231.	1.20E+12
811.8734	837.6534	0.00				
23.2560	2.4040	1811572.	70378.	-0.00872	1314.	1.20E+12
817.8838	836.3321	0.00				
23.3920	2.3898	1927518.	71718.	-0.00871	1398.	1.20E+12
823.9046	835.0469	0.00				
23.5280	2.3756	2045659.	73067.	-0.00871	1484.	1.20E+12
829.9360	833.7970	0.00				
23.6640	2.3613	2166010.	74427.	-0.00871	1571.	1.20E+12
835.9778	832.5815	0.00				
23.8000	2.3471	2288588.	75796.	-0.00871	1660.	1.20E+12
842.0302	831.3997	0.00				
23.9360	2.3329	2413408.	77175.	-0.00870	1750.	1.20E+12
848.0932	830.2510	0.00				
24.0720	2.3187	2540487.	78564.	-0.00870	1843.	1.20E+12
854.1667	829.1345	0.00				
24.2080	2.3045	2669841.	79963.	-0.00870	1936.	1.20E+12
860.2508	828.0497	0.00				
24.3440	2.2903	2801487.	81372.	-0.00869	2032.	1.20E+12

866.3454	826.9958	0.00				
24.4800	2.2762	2935440.	82791.	-0.00869	2129.	1.20E+12
872.4506	825.9723	0.00				
24.6160	2.2620	3071716.	84220.	-0.00868	2228.	1.20E+12
878.5664	824.9786	0.00				
24.7520	2.2478	3210333.	85659.	-0.00868	2328.	1.20E+12
884.6928	824.0139	0.00				
24.8880	2.2337	3351306.	87107.	-0.00867	2431.	1.20E+12
890.8298	823.0779	0.00				
25.0240	2.2195	3494651.	88566.	-0.00867	2535.	1.20E+12
896.9773	822.1698	0.00				
25.1600	2.2054	3640386.	90035.	-0.00867	2640.	1.20E+12
903.1355	821.2893	0.00				
25.2960	2.1912	3788526.	91514.	-0.00866	2748.	1.20E+12
909.3041	820.4357	0.00				
25.4320	2.1771	3939087.	93003.	-0.00866	2857.	1.20E+12
915.4834	819.6086	0.00				
25.5680	2.1630	4092088.	94502.	-0.00865	2968.	1.20E+12
921.6732	818.8075	0.00				
25.7040	2.1489	4247543.	96011.	-0.00864	3081.	1.20E+12
927.8735	818.0319	0.00				
25.8400	2.1348	4405469.	97531.	-0.00864	3195.	1.20E+12
934.0843	817.2813	0.00				
25.9760	2.1207	4565883.	99060.	-0.00863	3312.	1.20E+12
940.3056	816.5554	0.00				
26.1120	2.1066	4728802.	100600.	-0.00863	3430.	1.20E+12
946.5374	815.8537	0.00				
26.2480	2.0925	4894241.	102150.	-0.00862	3550.	1.20E+12
952.7797	815.1758	0.00				
26.3840	2.0785	5062218.	103710.	-0.00861	3672.	1.20E+12
959.0324	814.5213	0.00				
26.5200	2.0644	5232750.	105280.	-0.00861	3795.	1.20E+12
965.2955	813.8898	0.00				
26.6560	2.0504	5405853.	106861.	-0.00860	3921.	1.20E+12
971.5690	813.2810	0.00				
26.7920	2.0363	5581543.	108451.	-0.00859	4048.	1.20E+12
977.8529	812.6944	0.00				
26.9280	2.0223	5759837.	110052.	-0.00858	4178.	1.20E+12
984.1470	812.1298	0.00				
27.0640	2.0083	5940753.	111664.	-0.00857	4309.	1.20E+12
990.4515	811.5867	0.00				
27.2000	1.9943	6124307.	113285.	-0.00857	4442.	1.20E+12
996.7662	811.0649	0.00				
27.3360	1.9804	6310516.	114917.	-0.00856	4577.	1.20E+12
1003.	810.5641	0.00				
27.4720	1.9664	6499396.	116559.	-0.00855	4714.	1.20E+12
1009.	810.0839	0.00				
27.6080	1.9525	6690965.	118212.	-0.00854	4853.	1.20E+12
1016.	809.6241	0.00				
27.7440	1.9385	6885240.	119875.	-0.00853	4994.	1.20E+12

1022.	809.1843	0.00					
	27.8800	1.9246	7082236.	121548.	-0.00852	5137.	1.20E+12
1028.	808.7643	0.00					
	28.0160	1.9107	7281972.	123232.	-0.00851	5282.	1.20E+12
1035.	808.3637	0.00					
	28.1520	1.8968	7484465.	124926.	-0.00850	5428.	1.20E+12
1041.	807.9825	0.00					
	28.2880	1.8830	7689730.	126630.	-0.00849	5577.	1.20E+12
1048.	807.6202	0.00					
	28.4240	1.8691	7897786.	128345.	-0.00848	5728.	1.20E+12
1054.	807.2767	0.00					
	28.5600	1.8553	8108649.	130071.	-0.00847	5881.	1.20E+12
1060.	806.9517	0.00					
	28.6960	1.8415	8322337.	131807.	-0.00846	6036.	1.20E+12
1067.	806.6450	0.00					
	28.8320	1.8277	8538867.	133553.	-0.00845	6193.	1.20E+12
1073.	806.3564	0.00					
	28.9680	1.8139	8758255.	135310.	-0.00844	6352.	1.20E+12
1080.	806.0856	0.00					
	29.1040	1.8001	8980519.	137078.	-0.00842	6513.	1.20E+12
1086.	805.8324	0.00					
	29.2400	1.7864	9205676.	138856.	-0.00841	6677.	1.20E+12
1093.	805.5967	0.00					
	29.3760	1.7727	9433743.	140644.	-0.00840	6842.	1.20E+12
1099.	805.3783	0.00					
	29.5120	1.7590	9664738.	142443.	-0.00839	7010.	1.20E+12
1106.	805.1769	0.00					
	29.6480	1.7453	9898678.	144253.	-0.00837	7179.	1.20E+12
1112.	804.9924	0.00					
	29.7840	1.7317	1.01E+07	146073.	-0.00836	7351.	1.20E+12
1119.	804.8246	0.00					
	29.9200	1.7180	1.04E+07	147904.	-0.00834	7525.	1.20E+12
1125.	804.6734	0.00					
	30.0560	1.7044	1.06E+07	149746.	-0.00833	7701.	1.20E+12
1132.	804.5385	0.00					
	30.1920	1.6908	1.09E+07	151598.	-0.00832	7880.	1.20E+12
1138.	804.4199	0.00					
	30.3280	1.6773	1.11E+07	153461.	-0.00830	8060.	1.20E+12
1145.	804.3174	0.00					
	30.4640	1.6637	1.14E+07	155334.	-0.00829	8243.	1.20E+12
1151.	804.2308	0.00					
	30.6000	1.6502	1.16E+07	157200.	-0.00827	8428.	1.20E+12
1136.	836.0953	0.00					
	30.7360	1.6367	1.19E+07	159033.	-0.00825	8615.	1.20E+12
1110.	884.4703	0.00					
	30.8720	1.6233	1.21E+07	160823.	-0.00824	8804.	1.20E+12
1083.	939.8548	0.00					
	31.0080	1.6099	1.24E+07	162566.	-0.00822	8996.	1.20E+12
1054.	1004.	0.00					
	31.1440	1.5965	1.27E+07	164260.	-0.00820	9189.	1.20E+12

1022.	1080.	0.00				
31.2800	1.5831	1.29E+07	165899.	-0.00819	9385.	1.20E+12
987.1124	1170.	0.00				
31.4160	1.5697	1.32E+07	167479.	-0.00817	9582.	1.20E+12
948.7173	1281.	0.00				
31.5520	1.5564	1.35E+07	168992.	-0.00815	9781.	1.20E+12
905.8916	1420.	0.00				
31.6880	1.5431	1.38E+07	170431.	-0.00813	9982.	1.20E+12
857.4026	1603.	0.00				
31.8240	1.5299	1.40E+07	171785.	-0.00811	10185.	1.20E+12
801.3371	1856.	0.00				
31.9600	1.5167	1.43E+07	173038.	-0.00809	10389.	1.20E+12
734.4406	2233.	0.00				
32.0960	1.5035	1.46E+07	174168.	-0.00807	10594.	1.20E+12
650.3261	2880.	0.00				
32.2320	1.4903	1.49E+07	175133.	-0.00805	10801.	1.20E+12
532.7112	4339.	0.00				
32.3680	1.4772	1.52E+07	175805.	-0.00803	11009.	1.20E+12
290.5505	14743.	0.00				
32.5040	1.4641	1.55E+07	175657.	-0.00801	11217.	1.20E+12
-471.670	5657.	0.00				
32.6400	1.4510	1.58E+07	174767.	-0.00799	11425.	1.20E+12
-619.062	3320.	0.00				
32.7760	1.4380	1.60E+07	173675.	-0.00797	11631.	1.20E+12
-719.488	2484.	0.00				
32.9120	1.4250	1.63E+07	172436.	-0.00795	11836.	1.20E+12
-799.261	2035.	0.00				
33.0480	1.4121	1.66E+07	171076.	-0.00793	12039.	1.20E+12
-866.984	1748.	0.00				
33.1840	1.3991	1.69E+07	169612.	-0.00790	12241.	1.20E+12
-926.681	1547.	0.00				
33.3200	1.3863	1.72E+07	168056.	-0.00788	12441.	1.20E+12
-980.597	1396.	0.00				
33.4560	1.3734	1.74E+07	166415.	-0.00786	12639.	1.20E+12
-1030.	1279.	0.00				
33.5920	1.3606	1.77E+07	164722.	-0.00783	12835.	1.20E+12
-1046.	1254.	0.00				
33.7280	1.3479	1.80E+07	163015.	-0.00781	13029.	1.20E+12
-1046.	1267.	0.00				
33.8640	1.3351	1.82E+07	161307.	-0.00778	13221.	1.20E+12
-1046.	1279.	0.00				
34.0000	1.3224	1.85E+07	159599.	-0.00776	13411.	1.20E+12
-1047.	1292.	0.00				
34.1360	1.3098	1.87E+07	157890.	-0.00773	13598.	1.20E+12
-1047.	1305.	0.00				
34.2720	1.2972	1.90E+07	156181.	-0.00771	13784.	1.20E+12
-1047.	1318.	0.00				
34.4080	1.2846	1.93E+07	154471.	-0.00768	13968.	1.20E+12
-1048.	1331.	0.00				
34.5440	1.2721	1.95E+07	152761.	-0.00765	14150.	1.20E+12

-1048.	1344.	0.00				
34.6800	1.2597	1.98E+07	151051.	-0.00763	14330.	1.20E+12
-1048.	1358.	0.00				
34.8160	1.2472	2.00E+07	149340.	-0.00760	14508.	1.20E+12
-1048.	1372.	0.00				
34.9520	1.2349	2.02E+07	147629.	-0.00757	14683.	1.20E+12
-1049.	1386.	0.00				
35.0880	1.2225	2.05E+07	145918.	-0.00755	14857.	1.20E+12
-1049.	1400.	0.00				
35.2240	1.2102	2.07E+07	144206.	-0.00752	15029.	1.20E+12
-1049.	1414.	0.00				
35.3600	1.1980	2.10E+07	142494.	-0.00749	15198.	1.20E+12
-1049.	1429.	0.00				
35.4960	1.1858	2.12E+07	140783.	-0.00746	15366.	1.20E+12
-1049.	1443.	0.00				
35.6320	1.1736	2.14E+07	139071.	-0.00743	15532.	1.20E+12
-1049.	1458.	0.00				
35.7680	1.1615	2.16E+07	137360.	-0.00740	15695.	1.20E+12
-1049.	1474.	0.00				
35.9040	1.1495	2.19E+07	135648.	-0.00737	15857.	1.20E+12
-1049.	1489.	0.00				
36.0400	1.1375	2.21E+07	133937.	-0.00734	16016.	1.20E+12
-1049.	1504.	0.00				
36.1760	1.1255	2.23E+07	132226.	-0.00731	16174.	1.20E+12
-1048.	1520.	0.00				
36.3120	1.1136	2.25E+07	130515.	-0.00728	16329.	1.20E+12
-1048.	1536.	0.00				
36.4480	1.1017	2.27E+07	128806.	-0.00725	16483.	1.20E+12
-1046.	1549.	0.00				
36.5840	1.0899	2.29E+07	127101.	-0.00722	16634.	1.20E+12
-1044.	1563.	0.00				
36.7200	1.0782	2.31E+07	125400.	-0.00719	16784.	1.20E+12
-1041.	1576.	0.00				
36.8560	1.0664	2.33E+07	123703.	-0.00716	16931.	1.20E+12
-1038.	1589.	0.00				
36.9920	1.0548	2.35E+07	122010.	-0.00713	17077.	1.20E+12
-1036.	1603.	0.00				
37.1280	1.0432	2.37E+07	120322.	-0.00709	17220.	1.20E+12
-1033.	1617.	0.00				
37.2640	1.0316	2.39E+07	118637.	-0.00706	17362.	1.20E+12
-1031.	1631.	0.00				
37.4000	1.0201	2.41E+07	116957.	-0.00703	17501.	1.20E+12
-1028.	1645.	0.00				
37.5360	1.0087	2.43E+07	115282.	-0.00700	17638.	1.20E+12
-1025.	1659.	0.00				
37.6720	0.9973	2.45E+07	113610.	-0.00696	17774.	1.20E+12
-1023.	1674.	0.00				
37.8080	0.9860	2.47E+07	111943.	-0.00693	17907.	1.20E+12
-1020.	1689.	0.00				
37.9440	0.9747	2.49E+07	110280.	-0.00690	18039.	1.20E+12

-1017.	1704.	0.00				
38.0800	0.9635	2.51E+07	108622.	-0.00686	18168.	1.20E+12
-1015.	1719.	0.00				
38.2160	0.9523	2.52E+07	106968.	-0.00683	18296.	1.20E+12
-1012.	1734.	0.00				
38.3520	0.9412	2.54E+07	105319.	-0.00679	18422.	1.20E+12
-1009.	1750.	0.00				
38.4880	0.9301	2.56E+07	103674.	-0.00676	18545.	1.20E+12
-1006.	1766.	0.00				
38.6240	0.9191	2.57E+07	102034.	-0.00672	18667.	1.20E+12
-1004.	1782.	0.00				
38.7600	0.9082	2.59E+07	100399.	-0.00669	18787.	1.20E+12
-1001.	1798.	0.00				
38.8960	0.8973	2.61E+07	98768.	-0.00665	18905.	1.20E+12
-997.970	1815.	0.00				
39.0320	0.8865	2.62E+07	97141.	-0.00662	19021.	1.20E+12
-995.108	1832.	0.00				
39.1680	0.8757	2.64E+07	95520.	-0.00658	19135.	1.20E+12
-992.225	1849.	0.00				
39.3040	0.8650	2.65E+07	93903.	-0.00655	19247.	1.20E+12
-989.322	1867.	0.00				
39.4400	0.8543	2.67E+07	92290.	-0.00651	19357.	1.20E+12
-986.398	1884.	0.00				
39.5760	0.8437	2.68E+07	90683.	-0.00647	19465.	1.20E+12
-983.453	1902.	0.00				
39.7120	0.8332	2.70E+07	89080.	-0.00644	19572.	1.20E+12
-980.488	1920.	0.00				
39.8480	0.8227	2.71E+07	87483.	-0.00640	19676.	1.20E+12
-977.502	1939.	0.00				
39.9840	0.8123	2.73E+07	85890.	-0.00636	19779.	1.20E+12
-974.495	1958.	0.00				
40.1200	0.8020	2.74E+07	84302.	-0.00633	19880.	1.20E+12
-971.467	1977.	0.00				
40.2560	0.7917	2.75E+07	82719.	-0.00629	19978.	1.20E+12
-968.419	1996.	0.00				
40.3920	0.7814	2.77E+07	81141.	-0.00625	20075.	1.20E+12
-965.349	2016.	0.00				
40.5280	0.7713	2.78E+07	79568.	-0.00621	20170.	1.20E+12
-962.259	2036.	0.00				
40.6640	0.7612	2.79E+07	78000.	-0.00617	20264.	1.20E+12
-959.147	2056.	0.00				
40.8000	0.7511	2.81E+07	76437.	-0.00614	20355.	1.20E+12
-956.015	2077.	0.00				
40.9360	0.7411	2.82E+07	74880.	-0.00610	20445.	1.20E+12
-952.861	2098.	0.00				
41.0720	0.7312	2.83E+07	73327.	-0.00606	20532.	1.20E+12
-949.686	2120.	0.00				
41.2080	0.7214	2.84E+07	71780.	-0.00602	20618.	1.20E+12
-946.490	2141.	0.00				
41.3440	0.7116	2.85E+07	70238.	-0.00598	20702.	1.20E+12

-943.272	2163.	0.00				
41.4800	0.7018	2.87E+07	68701.	-0.00594	20785.	1.20E+12
-940.033	2186.	0.00				
41.6160	0.6922	2.88E+07	67170.	-0.00590	20865.	1.20E+12
-936.773	2209.	0.00				
41.7520	0.6826	2.89E+07	65644.	-0.00587	20944.	1.20E+12
-933.491	2232.	0.00				
41.8880	0.6730	2.90E+07	64123.	-0.00583	21020.	1.20E+12
-930.187	2256.	0.00				
42.0240	0.6635	2.91E+07	62608.	-0.00579	21095.	1.20E+12
-926.862	2280.	0.00				
42.1600	0.6541	2.92E+07	61098.	-0.00575	21169.	1.20E+12
-923.515	2304.	0.00				
42.2960	0.6448	2.93E+07	59593.	-0.00571	21240.	1.20E+12
-920.147	2329.	0.00				
42.4320	0.6355	2.94E+07	58094.	-0.00567	21310.	1.20E+12
-916.756	2354.	0.00				
42.5680	0.6263	2.95E+07	56601.	-0.00563	21378.	1.20E+12
-913.344	2380.	0.00				
42.7040	0.6171	2.96E+07	55113.	-0.00559	21444.	1.20E+12
-909.909	2406.	0.00				
42.8400	0.6081	2.97E+07	53631.	-0.00555	21508.	1.20E+12
-906.453	2433.	0.00				
42.9760	0.5990	2.97E+07	52155.	-0.00551	21571.	1.20E+12
-902.974	2460.	0.00				
43.1120	0.5901	2.98E+07	50684.	-0.00547	21631.	1.20E+12
-899.473	2488.	0.00				
43.2480	0.5812	2.99E+07	49219.	-0.00542	21691.	1.20E+12
-895.950	2516.	0.00				
43.3840	0.5724	3.00E+07	47759.	-0.00538	21748.	1.20E+12
-892.404	2544.	0.00				
43.5200	0.5636	3.01E+07	46306.	-0.00534	21804.	1.20E+12
-888.836	2574.	0.00				
43.6560	0.5549	3.01E+07	44858.	-0.00530	21858.	1.20E+12
-885.246	2603.	0.00				
43.7920	0.5463	3.02E+07	43416.	-0.00526	21910.	1.20E+12
-881.632	2634.	0.00				
43.9280	0.5378	3.03E+07	41981.	-0.00522	21960.	1.20E+12
-877.996	2665.	0.00				
44.0640	0.5293	3.03E+07	40551.	-0.00518	22009.	1.20E+12
-874.338	2696.	0.00				
44.2000	0.5209	3.04E+07	39127.	-0.00514	22056.	1.20E+12
-870.656	2728.	0.00				
44.3360	0.5125	3.05E+07	37709.	-0.00510	22102.	1.20E+12
-866.951	2761.	0.00				
44.4720	0.5042	3.05E+07	36297.	-0.00505	22146.	1.20E+12
-863.223	2794.	0.00				
44.6080	0.4960	3.06E+07	34891.	-0.00501	22188.	1.20E+12
-859.472	2828.	0.00				
44.7440	0.4879	3.06E+07	33492.	-0.00497	22228.	1.20E+12

-855.698	2862.	0.00				
44.8800	0.4798	3.07E+07	32098.	-0.00493	22267.	1.20E+12
-851.900	2898.	0.00				
45.0160	0.4718	3.08E+07	30711.	-0.00489	22304.	1.20E+12
-848.079	2934.	0.00				
45.1520	0.4638	3.08E+07	29330.	-0.00485	22340.	1.20E+12
-844.234	2970.	0.00				
45.2880	0.4560	3.08E+07	27956.	-0.00480	22374.	1.20E+12
-840.365	3008.	0.00				
45.4240	0.4481	3.09E+07	26587.	-0.00476	22406.	1.20E+12
-836.472	3046.	0.00				
45.5600	0.4404	3.09E+07	25225.	-0.00472	22437.	1.20E+12
-832.556	3085.	0.00				
45.6960	0.4327	3.10E+07	23870.	-0.00468	22466.	1.20E+12
-828.615	3125.	0.00				
45.8320	0.4251	3.10E+07	22521.	-0.00464	22493.	1.20E+12
-824.650	3166.	0.00				
45.9680	0.4176	3.10E+07	21178.	-0.00459	22519.	1.20E+12
-820.661	3207.	0.00				
46.1040	0.4101	3.11E+07	19842.	-0.00455	22543.	1.20E+12
-816.647	3249.	0.00				
46.2400	0.4028	3.11E+07	18513.	-0.00451	22566.	1.20E+12
-812.608	3293.	0.00				
46.3760	0.3954	3.11E+07	17190.	-0.00447	22587.	1.20E+12
-808.545	3337.	0.00				
46.5120	0.3882	3.12E+07	15874.	-0.00442	22607.	1.20E+12
-804.457	3382.	0.00				
46.6480	0.3810	3.12E+07	14564.	-0.00438	22625.	1.20E+12
-800.344	3428.	0.00				
46.7840	0.3739	3.12E+07	13261.	-0.00434	22641.	1.20E+12
-796.206	3476.	0.00				
46.9200	0.3668	3.12E+07	11965.	-0.00430	22656.	1.20E+12
-792.042	3524.	0.00				
47.0560	0.3598	3.13E+07	10676.	-0.00425	22669.	1.20E+12
-787.853	3573.	0.00				
47.1920	0.3529	3.13E+07	9394.	-0.00421	22681.	1.20E+12
-783.638	3624.	0.00				
47.3280	0.3461	3.13E+07	8118.	-0.00417	22692.	1.20E+12
-779.397	3675.	0.00				
47.4640	0.3393	3.13E+07	6850.	-0.00413	22701.	1.20E+12
-775.130	3728.	0.00				
47.6000	0.3326	3.13E+07	5588.	-0.00408	22708.	1.20E+12
-770.838	3782.	0.00				
47.7360	0.3260	3.13E+07	4334.	-0.00404	22714.	1.20E+12
-766.518	3837.	0.00				
47.8720	0.3194	3.13E+07	3086.	-0.00400	22718.	1.20E+12
-762.173	3894.	0.00				
48.0080	0.3129	3.13E+07	542.7767	-0.00396	22721.	1.20E+12
-2355.	12282.	0.00				
48.1440	0.3065	3.13E+07	-3296.	-0.00391	22719.	1.20E+12

-2349.	12508.	0.00				
48.2800	0.3002	3.13E+07	-7125.	-0.00387	22713.	1.20E+12
-2343.	12738.	0.00				
48.4160	0.2939	3.13E+07	-10943.	-0.00383	22703.	1.20E+12
-2336.	12973.	0.00				
48.5520	0.2877	3.13E+07	-14750.	-0.00379	22687.	1.20E+12
-2329.	13213.	0.00				
48.6880	0.2815	3.13E+07	-18545.	-0.00374	22668.	1.20E+12
-2322.	13458.	0.00				
48.8240	0.2755	3.12E+07	-22327.	-0.00370	22643.	1.20E+12
-2314.	13708.	0.00				
48.9600	0.2695	3.12E+07	-26096.	-0.00366	22615.	1.20E+12
-2305.	13963.	0.00				
49.0960	0.2635	3.11E+07	-29851.	-0.00362	22582.	1.20E+12
-2297.	14223.	0.00				
49.2320	0.2577	3.11E+07	-33592.	-0.00357	22544.	1.20E+12
-2288.	14489.	0.00				
49.3680	0.2519	3.10E+07	-37318.	-0.00353	22502.	1.20E+12
-2278.	14761.	0.00				
49.5040	0.2461	3.10E+07	-41027.	-0.00349	22456.	1.20E+12
-2268.	15039.	0.00				
49.6400	0.2405	3.09E+07	-44720.	-0.00345	22405.	1.20E+12
-2258.	15323.	0.00				
49.7760	0.2349	3.08E+07	-48396.	-0.00341	22350.	1.20E+12
-2247.	15613.	0.00				
49.9120	0.2294	3.07E+07	-52054.	-0.00336	22290.	1.20E+12
-2236.	15909.	0.00				
50.0480	0.2239	3.06E+07	-55693.	-0.00332	22227.	1.20E+12
-2224.	16212.	0.00				
50.1840	0.2185	3.06E+07	-59313.	-0.00328	22159.	1.20E+12
-2212.	16522.	0.00				
50.3200	0.2132	3.05E+07	-62913.	-0.00324	22086.	1.20E+12
-2200.	16839.	0.00				
50.4560	0.2079	3.03E+07	-66492.	-0.00320	22010.	1.20E+12
-2187.	17163.	0.00				
50.5920	0.2028	3.02E+07	-70051.	-0.00316	21929.	1.20E+12
-2174.	17495.	0.00				
50.7280	0.1976	3.01E+07	-73587.	-0.00311	21844.	1.20E+12
-2160.	17835.	0.00				
50.8640	0.1926	3.00E+07	-77100.	-0.00307	21755.	1.20E+12
-2146.	18183.	0.00				
51.0000	0.1876	2.99E+07	-80590.	-0.00303	21661.	1.20E+12
-2131.	18540.	0.00				
51.1360	0.1827	2.97E+07	-84056.	-0.00299	21564.	1.20E+12
-2116.	18905.	0.00				
51.2720	0.1778	2.96E+07	-87497.	-0.00295	21462.	1.20E+12
-2101.	19279.	0.00				
51.4080	0.1730	2.94E+07	-90913.	-0.00291	21357.	1.20E+12
-2085.	19663.	0.00				
51.5440	0.1683	2.93E+07	-94302.	-0.00287	21247.	1.20E+12

-2069.	20057.	0.00				
51.6800	0.1637	2.91E+07	-97665.	-0.00283	21134.	1.20E+12
-2052.	20460.	0.00				
51.8160	0.1591	2.90E+07	-100999.	-0.00279	21016.	1.20E+12
-2035.	20875.	0.00				
51.9520	0.1546	2.88E+07	-104306.	-0.00275	20894.	1.20E+12
-2017.	21300.	0.00				
52.0880	0.1501	2.86E+07	-107583.	-0.00271	20769.	1.20E+12
-1999.	21737.	0.00				
52.2240	0.1457	2.85E+07	-110831.	-0.00268	20640.	1.20E+12
-1981.	22186.	0.00				
52.3600	0.1414	2.83E+07	-114048.	-0.00264	20507.	1.20E+12
-1962.	22647.	0.00				
52.4960	0.1371	2.81E+07	-117233.	-0.00260	20370.	1.20E+12
-1942.	23121.	0.00				
52.6320	0.1329	2.79E+07	-120387.	-0.00256	20229.	1.20E+12
-1922.	23610.	0.00				
52.7680	0.1287	2.77E+07	-123507.	-0.00252	20085.	1.20E+12
-1902.	24112.	0.00				
52.9040	0.1246	2.75E+07	-126594.	-0.00249	19937.	1.20E+12
-1881.	24630.	0.00				
53.0400	0.1206	2.73E+07	-129647.	-0.00245	19785.	1.20E+12
-1860.	25163.	0.00				
53.1760	0.1167	2.71E+07	-132664.	-0.00241	19630.	1.20E+12
-1838.	25713.	0.00				
53.3120	0.1127	2.68E+07	-135645.	-0.00237	19471.	1.20E+12
-1816.	26281.	0.00				
53.4480	0.1089	2.66E+07	-138590.	-0.00234	19309.	1.20E+12
-1793.	26867.	0.00				
53.5840	0.1051	2.64E+07	-141497.	-0.00230	19143.	1.20E+12
-1769.	27472.	0.00				
53.7200	0.1014	2.62E+07	-144365.	-0.00227	18974.	1.20E+12
-1746.	28098.	0.00				
53.8560	0.09772	2.59E+07	-147194.	-0.00223	18801.	1.20E+12
-1721.	28746.	0.00				
53.9920	0.09411	2.57E+07	-149983.	-0.00220	18625.	1.20E+12
-1696.	29417.	0.00				
54.1280	0.09055	2.54E+07	-152730.	-0.00216	18446.	1.20E+12
-1671.	30113.	0.00				
54.2640	0.08705	2.52E+07	-155436.	-0.00213	18264.	1.20E+12
-1645.	30835.	0.00				
54.4000	0.08361	2.49E+07	-158098.	-0.00209	18078.	1.20E+12
-1618.	31584.	0.00				
54.5360	0.08022	2.47E+07	-160717.	-0.00206	17889.	1.20E+12
-1591.	32364.	0.00				
54.6720	0.07689	2.44E+07	-163291.	-0.00203	17698.	1.20E+12
-1563.	33176.	0.00				
54.8080	0.07361	2.41E+07	-165818.	-0.00199	17503.	1.20E+12
-1535.	34022.	0.00				
54.9440	0.07039	2.39E+07	-168299.	-0.00196	17305.	1.20E+12

-1505.	34906.	0.00				
55.0800	0.06722	2.36E+07	-170732.	-0.00193	17104.	1.20E+12
-1476.	35830.	0.00				
55.2160	0.06410	2.33E+07	-173115.	-0.00190	16901.	1.20E+12
-1445.	36797.	0.00				
55.3520	0.06103	2.30E+07	-175448.	-0.00186	16695.	1.20E+12
-1414.	37812.	0.00				
55.4880	0.05801	2.27E+07	-177730.	-0.00183	16486.	1.20E+12
-1382.	38879.	0.00				
55.6240	0.05505	2.24E+07	-179958.	-0.00180	16274.	1.20E+12
-1349.	40003.	0.00				
55.7600	0.05213	2.21E+07	-182133.	-0.00177	16060.	1.20E+12
-1316.	41189.	0.00				
55.8960	0.04926	2.18E+07	-184252.	-0.00174	15843.	1.20E+12
-1281.	42445.	0.00				
56.0320	0.04644	2.15E+07	-186314.	-0.00171	15623.	1.20E+12
-1246.	43778.	0.00				
56.1680	0.04367	2.12E+07	-188317.	-0.00168	15402.	1.20E+12
-1209.	45198.	0.00				
56.3040	0.04095	2.09E+07	-190261.	-0.00165	15178.	1.20E+12
-1172.	46714.	0.00				
56.4400	0.03827	2.06E+07	-192142.	-0.00163	14951.	1.20E+12
-1134.	48342.	0.00				
56.5760	0.03564	2.03E+07	-193960.	-0.00160	14723.	1.20E+12
-1094.	50096.	0.00				
56.7120	0.03305	2.00E+07	-195712.	-0.00157	14492.	1.20E+12
-1053.	51995.	0.00				
56.8480	0.03051	1.97E+07	-197386.	-0.00154	14259.	1.20E+12
-999.061	53439.	0.00				
56.9840	0.02801	1.93E+07	-198952.	-0.00152	14025.	1.20E+12
-919.445	53567.	0.00				
57.1200	0.02556	1.90E+07	-200388.	-0.00149	13788.	1.20E+12
-840.850	53695.	0.00				
57.2560	0.02314	1.87E+07	-201697.	-0.00147	13550.	1.20E+12
-763.263	53822.	0.00				
57.3920	0.02077	1.84E+07	-202880.	-0.00144	13311.	1.20E+12
-686.669	53950.	0.00				
57.5280	0.01844	1.80E+07	-203939.	-0.00142	13070.	1.20E+12
-611.053	54078.	0.00				
57.6640	0.01615	1.77E+07	-204876.	-0.00139	12828.	1.20E+12
-536.401	54206.	0.00				
57.8000	0.01390	1.74E+07	-205691.	-0.00137	12585.	1.20E+12
-462.698	54334.	0.00				
57.9360	0.01168	1.70E+07	-206387.	-0.00134	12341.	1.20E+12
-389.927	54462.	0.00				
58.0720	0.00951	1.67E+07	-206964.	-0.00132	12097.	1.20E+12
-318.074	54590.	0.00				
58.2080	0.00737	1.63E+07	-207426.	-0.00130	11851.	1.20E+12
-247.121	54717.	0.00				
58.3440	0.00527	1.60E+07	-207772.	-0.00128	11605.	1.20E+12

-177.052	54845.	0.00				
58.4800	0.00320	1.57E+07	-208004.	-0.00126	11359.	1.20E+12
-107.850	54973.	0.00				
58.6160	0.00117	1.53E+07	-208125.	-0.00123	11113.	1.20E+12
-39.499	55101.	0.00				
58.7520	-8.28E-04	1.50E+07	-208134.	-0.00121	10867.	1.20E+12
28.0189	55229.	0.00				
58.8880	-0.00279	1.46E+07	-208034.	-0.00119	10620.	1.20E+12
94.7217	55357.	0.00				
59.0240	-0.00472	1.43E+07	-207825.	-0.00117	10374.	1.20E+12
160.6271	55484.	0.00				
59.1600	-0.00662	1.40E+07	-207510.	-0.00115	10128.	1.20E+12
225.7530	55612.	0.00				
59.2960	-0.00849	1.36E+07	-207089.	-0.00114	9883.	1.20E+12
290.1176	55740.	0.00				
59.4320	-0.01033	1.33E+07	-206564.	-0.00112	9638.	1.20E+12
353.7394	55868.	0.00				
59.5680	-0.01214	1.30E+07	-205935.	-0.00110	9394.	1.20E+12
416.6371	55996.	0.00				
59.7040	-0.01392	1.26E+07	-205204.	-0.00108	9151.	1.20E+12
478.8293	56124.	0.00				
59.8400	-0.01568	1.23E+07	-204373.	-0.00107	8908.	1.20E+12
540.3350	56252.	0.00				
59.9760	-0.01740	1.19E+07	-203441.	-0.00105	8667.	1.20E+12
601.1732	56379.	0.00				
60.1120	-0.01910	1.16E+07	-202411.	-0.00103	8427.	1.20E+12
661.3632	56507.	0.00				
60.2480	-0.02077	1.13E+07	-201283.	-0.00102	8188.	1.20E+12
720.9242	56635.	0.00				
60.3840	-0.02242	1.10E+07	-200058.	-0.00100	7950.	1.20E+12
779.8756	56763.	0.00				
60.5200	-0.02405	1.06E+07	-198738.	-9.88E-04	7714.	1.20E+12
838.2368	56891.	0.00				
60.6560	-0.02565	1.03E+07	-197323.	-9.73E-04	7480.	1.20E+12
896.0274	57019.	0.00				
60.7920	-0.02722	9991682.	-195814.	-9.60E-04	7247.	1.20E+12
953.2669	57146.	0.00				
60.9280	-0.02878	9673383.	-194212.	-9.46E-04	7016.	1.20E+12
1010.	57274.	0.00				
61.0640	-0.03031	9357774.	-192518.	-9.33E-04	6787.	1.20E+12
1066.	57402.	0.00				
61.2000	-0.03183	9045005.	-190732.	-9.21E-04	6560.	1.20E+12
1122.	57530.	0.00				
61.3360	-0.03332	8735224.	-188856.	-9.09E-04	6336.	1.20E+12
1177.	57658.	0.00				
61.4720	-0.03479	8428578.	-186891.	-8.97E-04	6113.	1.20E+12
1232.	57786.	0.00				
61.6080	-0.03625	8125213.	-184836.	-8.86E-04	5893.	1.20E+12
1286.	57913.	0.00				
61.7440	-0.03768	7825274.	-182693.	-8.75E-04	5676.	1.20E+12

1340.	58041.	0.00				
61.8800	-0.03910	7528904.	-180462.	-8.65E-04	5461.	1.20E+12
1394.	58169.	0.00				
62.0160	-0.04050	7236246.	-178144.	-8.54E-04	5248.	1.20E+12
1447.	58297.	0.00				
62.1520	-0.04189	6947442.	-175740.	-8.45E-04	5039.	1.20E+12
1500.	58425.	0.00				
62.2880	-0.04326	6662632.	-173249.	-8.36E-04	4832.	1.20E+12
1552.	58553.	0.00				
62.4240	-0.04462	6381956.	-170674.	-8.27E-04	4629.	1.20E+12
1604.	58681.	0.00				
62.5600	-0.04596	6105554.	-168013.	-8.18E-04	4428.	1.20E+12
1656.	58808.	0.00				
62.6960	-0.04729	5833562.	-165268.	-8.10E-04	4231.	1.20E+12
1708.	58936.	0.00				
62.8320	-0.04860	5566118.	-162439.	-8.02E-04	4037.	1.20E+12
1759.	59064.	0.00				
62.9680	-0.04991	5303360.	-159527.	-7.95E-04	3846.	1.20E+12
1810.	59192.	0.00				
63.1040	-0.05120	5045422.	-156531.	-7.88E-04	3659.	1.20E+12
1861.	59320.	0.00				
63.2400	-0.05248	4792442.	-153453.	-7.81E-04	3476.	1.20E+12
1912.	59448.	0.00				
63.3760	-0.05375	4544552.	-150292.	-7.75E-04	3296.	1.20E+12
1962.	59575.	0.00				
63.5120	-0.05501	4301889.	-147049.	-7.69E-04	3120.	1.20E+12
2012.	59703.	0.00				
63.6480	-0.05626	4064585.	-143724.	-7.63E-04	2948.	1.20E+12
2062.	59831.	0.00				
63.7840	-0.05750	3832775.	-140317.	-7.58E-04	2780.	1.20E+12
2112.	59959.	0.00				
63.9200	-0.05873	3606591.	-136829.	-7.53E-04	2616.	1.20E+12
2162.	60087.	0.00				
64.0560	-0.05996	3386166.	-133266.	-7.48E-04	2456.	1.20E+12
2204.	59990.	0.00				
64.1920	-0.06117	3171612.	-129635.	-7.43E-04	2300.	1.20E+12
2245.	59899.	0.00				
64.3280	-0.06238	2963037.	-125937.	-7.39E-04	2149.	1.20E+12
2287.	59818.	0.00				
64.4640	-0.06359	2760552.	-122172.	-7.35E-04	2002.	1.20E+12
2328.	59748.	0.00				
64.6000	-0.06478	2564268.	-118339.	-7.32E-04	1860.	1.20E+12
2369.	59687.	0.00				
64.7360	-0.06597	2374293.	-114439.	-7.28E-04	1722.	1.20E+12
2411.	59635.	0.00				
64.8720	-0.06716	2190740.	-110470.	-7.25E-04	1589.	1.20E+12
2452.	59591.	0.00				
65.0080	-0.06834	2013719.	-106434.	-7.22E-04	1461.	1.20E+12
2494.	59555.	0.00				
65.1440	-0.06952	1843339.	-102330.	-7.20E-04	1337.	1.20E+12

2536.	59527.	0.00					
65.2800	-0.07069	1679714.	-98158.	-7.17E-04	1218.	1.20E+12	
2578.	59505.	0.00					
65.4160	-0.07186	1522953.	-93917.	-7.15E-04	1105.	1.20E+12	
2619.	59490.	0.00					
65.5520	-0.07303	1373169.	-89608.	-7.13E-04	995.9413	1.20E+12	
2662.	59481.	0.00					
65.6880	-0.07419	1230474.	-85229.	-7.12E-04	892.4465	1.20E+12	
2704.	59478.	0.00					
65.8240	-0.07535	1094980.	-80782.	-7.10E-04	794.1746	1.20E+12	
2746.	59480.	0.00					
65.9600	-0.07651	966800.	-76266.	-7.09E-04	701.2077	1.20E+12	
2789.	59487.	0.00					
66.0960	-0.07766	846048.	-71680.	-7.07E-04	613.6277	1.20E+12	
2831.	59500.	0.00					
66.2320	-0.07881	732837.	-67024.	-7.06E-04	531.5174	1.20E+12	
2874.	59517.	0.00					
66.3680	-0.07997	627282.	-62298.	-7.05E-04	454.9593	1.20E+12	
2917.	59538.	0.00					
66.5040	-0.08112	529496.	-57502.	-7.05E-04	384.0368	1.20E+12	
2961.	59564.	0.00					
66.6400	-0.08227	439596.	-52635.	-7.04E-04	318.8333	1.20E+12	
3004.	59593.	0.00					
66.7760	-0.08341	357697.	-47697.	-7.03E-04	259.4327	1.20E+12	
3048.	59626.	0.00					
66.9120	-0.08456	283914.	-42687.	-7.03E-04	205.9193	1.20E+12	
3091.	59663.	0.00					
67.0480	-0.08571	218366.	-37606.	-7.03E-04	158.3778	1.20E+12	
3135.	59704.	0.00					
67.1840	-0.08685	161168.	-32453.	-7.02E-04	116.8932	1.20E+12	
3180.	59747.	0.00					
67.3200	-0.08800	112440.	-27227.	-7.02E-04	81.5511	1.20E+12	
3224.	59794.	0.00					
67.4560	-0.08915	72299.	-21929.	-7.02E-04	52.4374	1.20E+12	
3269.	59844.	0.00					
67.5920	-0.09029	40864.	-16557.	-7.02E-04	29.6384	1.20E+12	
3314.	59897.	0.00					
67.7280	-0.09144	18256.	-11112.	-7.02E-04	13.2410	1.20E+12	
3359.	59952.	0.00					
67.8640	-0.09258	4594.	-5593.	-7.02E-04	3.3323	1.20E+12	
3404.	60011.	0.00					
68.0000	-0.09373	0.00	0.00	-7.02E-04	0.00	1.20E+12	
3450.	30036.	0.00					

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection           = 4.81244453 inches
Computed slope at pile head    = -0.0085409 radians
Maximum bending moment         = 31327051. inch-lbs
Maximum shear force            = -208134. lbs
Depth of maximum bending moment = 48.00800000 feet below pile head
Depth of maximum shear force    = 58.75200000 feet below pile head
Number of iterations           = 28
Number of zero deflection points = 1
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
1	V, lb	0.00	M, in-lb	0.00	4.8124	-0.00854	
		-208134.	3.13E+07				

```

Maximum pile-head deflection = 4.8124445255 inches
Maximum pile-head rotation   = -0.0085408962 radians = -0.489357 deg.
  
```

The analysis ended normally.

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 40ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 40ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 40ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 40ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:43:55

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	38.50000	4.00000
3	41.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	----
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
----	-----	-----
1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	5.2333	-0.02720	0.00	-0.00759	1.97E-05	1.20E+12	
-245.517	162.4480	0.00					
0.1360	5.2209	-327.010	-402.147	-0.00759	0.2372	1.20E+12	
-247.301	330.5794	0.00					
0.2720	5.2085	-1313.	-807.175	-0.00759	0.9520	1.20E+12	
-249.066	336.3532	0.00					
0.4080	5.1961	-2962.	-1215.	-0.00759	2.1480	1.20E+12	
-250.811	342.2197	0.00					
0.5440	5.1837	-5279.	-1626.	-0.00759	3.8285	1.20E+12	

-252.536	348.1814	0.00				
0.6800	5.1713	-8268.	-2039.	-0.00759	5.9969	1.20E+12
-254.241	354.2409	0.00				
0.8160	5.1589	-11935.	-2456.	-0.00759	8.6563	1.20E+12
-255.925	360.4008	0.00				
0.9520	5.1465	-16283.	-2875.	-0.00759	11.8102	1.20E+12
-257.587	366.6639	0.00				
1.0880	5.1341	-21318.	-3296.	-0.00759	15.4616	1.20E+12
-259.229	373.0331	0.00				
1.2240	5.1217	-27043.	-3721.	-0.00759	19.6138	1.20E+12
-260.848	379.5112	0.00				
1.3600	5.1093	-33462.	-4148.	-0.00759	24.2699	1.20E+12
-262.446	386.1016	0.00				
1.4960	5.0969	-40581.	-4577.	-0.00759	29.4329	1.20E+12
-264.020	392.8073	0.00				
1.6320	5.0845	-48403.	-5010.	-0.00759	35.1060	1.20E+12
-265.572	399.6317	0.00				
1.7680	5.0721	-56932.	-5444.	-0.00760	41.2921	1.20E+12
-267.101	406.5784	0.00				
1.9040	5.0597	-66173.	-5881.	-0.00760	47.9942	1.20E+12
-268.605	413.6509	0.00				
2.0400	5.0473	-76129.	-6321.	-0.00760	55.2152	1.20E+12
-270.085	420.8532	0.00				
2.1760	5.0350	-86804.	-6763.	-0.00760	62.9579	1.20E+12
-271.541	428.1891	0.00				
2.3120	5.0226	-98203.	-7207.	-0.00760	71.2251	1.20E+12
-272.972	435.6629	0.00				
2.4480	5.0102	-110328.	-7654.	-0.00760	80.0197	1.20E+12
-274.377	443.2788	0.00				
2.5840	4.9978	-123185.	-8103.	-0.00760	89.3442	1.20E+12
-275.756	451.0413	0.00				
2.7200	4.9854	-136776.	-8554.	-0.00760	99.2015	1.20E+12
-277.108	458.9553	0.00				
2.8560	4.9730	-151104.	-9007.	-0.00760	109.5941	1.20E+12
-278.433	467.0257	0.00				
2.9920	4.9606	-166175.	-9463.	-0.00760	120.5245	1.20E+12
-279.731	475.2576	0.00				
3.1280	4.9482	-181990.	-9920.	-0.00760	131.9953	1.20E+12
-281.000	483.6564	0.00				
3.2640	4.9358	-198554.	-10380.	-0.00760	144.0089	1.20E+12
-282.241	492.2280	0.00				
3.4000	4.9234	-215870.	-10841.	-0.00760	156.5677	1.20E+12
-283.452	500.9781	0.00				
3.5360	4.9110	-233941.	-11305.	-0.00760	169.6741	1.20E+12
-284.634	509.9132	0.00				
3.6720	4.8986	-252769.	-11770.	-0.00760	183.3304	1.20E+12
-285.785	519.0397	0.00				
3.8080	4.8862	-272359.	-12238.	-0.00760	197.5387	1.20E+12
-286.904	528.3646	0.00				
3.9440	4.8738	-292713.	-12707.	-0.00760	212.3012	1.20E+12

-287.992	537.8951	0.00				
4.0800	4.8614	-313835.	-13178.	-0.00760	227.6200	1.20E+12
-289.048	547.6389	0.00				
4.2160	4.8490	-335725.	-13650.	-0.00760	243.4973	1.20E+12
-290.070	557.6040	0.00				
4.3520	4.8366	-358389.	-14124.	-0.00760	259.9348	1.20E+12
-291.059	567.7989	0.00				
4.4880	4.8242	-381828.	-14600.	-0.00760	276.9346	1.20E+12
-292.013	578.2326	0.00				
4.6240	4.8118	-406044.	-15078.	-0.00760	294.4985	1.20E+12
-292.931	588.9145	0.00				
4.7600	4.7994	-431041.	-15556.	-0.00760	312.6283	1.20E+12
-293.813	599.8545	0.00				
4.8960	4.7870	-456820.	-16037.	-0.00760	331.3257	1.20E+12
-294.658	611.0633	0.00				
5.0320	4.7746	-483384.	-16518.	-0.00760	350.5922	1.20E+12
-295.465	622.5519	0.00				
5.1680	4.7621	-510735.	-17001.	-0.00760	370.4295	1.20E+12
-296.233	634.3322	0.00				
5.3040	4.7497	-538875.	-17485.	-0.00760	390.8391	1.20E+12
-296.962	646.4168	0.00				
5.4400	4.7373	-567806.	-17970.	-0.00760	411.8223	1.20E+12
-297.649	658.8189	0.00				
5.5760	4.7249	-597530.	-18456.	-0.00761	433.3805	1.20E+12
-298.295	671.5527	0.00				
5.7120	4.7125	-628048.	-18944.	-0.00761	455.5149	1.20E+12
-298.898	684.6332	0.00				
5.8480	4.7001	-659362.	-19432.	-0.00761	478.2268	1.20E+12
-299.457	698.0764	0.00				
5.9840	4.6877	-691474.	-19921.	-0.00761	501.5171	1.20E+12
-299.971	711.8993	0.00				
6.1200	4.6753	-724385.	-20411.	-0.00761	525.3868	1.20E+12
-300.438	726.1202	0.00				
6.2560	4.6628	-758096.	-20902.	-0.00761	549.8370	1.20E+12
-300.858	740.7585	0.00				
6.3920	4.6504	-792608.	-21393.	-0.00761	574.8683	1.20E+12
-301.229	755.8349	0.00				
6.5280	4.6380	-827923.	-21885.	-0.00761	600.4815	1.20E+12
-301.549	771.3717	0.00				
6.6640	4.6256	-864041.	-22377.	-0.00761	626.6773	1.20E+12
-301.818	787.3929	0.00				
6.8000	4.6131	-900962.	-22870.	-0.00761	653.4560	1.20E+12
-302.033	803.9239	0.00				
6.9360	4.6007	-938688.	-23363.	-0.00762	680.8182	1.20E+12
-302.194	820.9925	0.00				
7.0720	4.5883	-977219.	-23856.	-0.00762	708.7642	1.20E+12
-302.298	838.6283	0.00				
7.2080	4.5758	-1016555.	-24350.	-0.00762	737.2942	1.20E+12
-302.343	856.8633	0.00				
7.3440	4.5634	-1056697.	-24843.	-0.00762	766.4082	1.20E+12

-302.329	875.7321	0.00				
7.4800	4.5510	-1097643.	-25336.	-0.00762	796.1062	1.20E+12
-302.252	895.2722	0.00				
7.6160	4.5385	-1139395.	-25830.	-0.00762	826.3881	1.20E+12
-302.111	915.5243	0.00				
7.7520	4.5261	-1181951.	-26322.	-0.00762	857.2536	1.20E+12
-301.903	936.5324	0.00				
7.8880	4.5137	-1225311.	-26815.	-0.00763	888.7023	1.20E+12
-301.627	958.3445	0.00				
8.0240	4.5012	-1269475.	-27307.	-0.00763	920.7336	1.20E+12
-301.279	981.0130	0.00				
8.1600	4.4888	-1314441.	-27798.	-0.00763	953.3470	1.20E+12
-300.858	1005.	0.00				
8.2960	4.4763	-1360209.	-28289.	-0.00763	986.5415	1.20E+12
-300.360	1029.	0.00				
8.4320	4.4638	-1406776.	-28779.	-0.00763	1020.	1.20E+12
-299.782	1055.	0.00				
8.5680	4.4514	-1454142.	-29267.	-0.00764	1055.	1.20E+12
-299.121	1081.	0.00				
8.7040	4.4389	-1502305.	-29755.	-0.00764	1090.	1.20E+12
-298.374	1109.	0.00				
8.8400	4.4265	-1551262.	-30241.	-0.00764	1125.	1.20E+12
-297.537	1139.	0.00				
8.9760	4.4140	-1601012.	-30726.	-0.00764	1161.	1.20E+12
-296.606	1169.	0.00				
9.1120	4.4015	-1651551.	-31209.	-0.00764	1198.	1.20E+12
-295.577	1201.	0.00				
9.2480	4.3890	-1702878.	-31691.	-0.00765	1235.	1.20E+12
-294.446	1235.	0.00				
9.3840	4.3766	-1754990.	-32170.	-0.00765	1273.	1.20E+12
-293.207	1271.	0.00				
9.5200	4.3641	-1807882.	-32648.	-0.00765	1311.	1.20E+12
-291.855	1308.	0.00				
9.6560	4.3516	-1861551.	-33123.	-0.00765	1350.	1.20E+12
-290.384	1348.	0.00				
9.7920	4.3391	-1915994.	-33595.	-0.00766	1390.	1.20E+12
-288.788	1390.	0.00				
9.9280	4.3266	-1971206.	-34065.	-0.00766	1430.	1.20E+12
-287.059	1434.	0.00				
10.0640	4.3141	-2027183.	-34532.	-0.00766	1470.	1.20E+12
-285.191	1482.	0.00				
10.2000	4.3016	-2083919.	-34996.	-0.00766	1511.	1.20E+12
-283.175	1532.	0.00				
10.3360	4.2891	-2141409.	-35456.	-0.00767	1553.	1.20E+12
-281.001	1586.	0.00				
10.4720	4.2766	-2199648.	-35913.	-0.00767	1595.	1.20E+12
-278.659	1644.	0.00				
10.6080	4.2640	-2258629.	-36366.	-0.00767	1638.	1.20E+12
-276.137	1707.	0.00				
10.7440	4.2515	-2318346.	-36814.	-0.00768	1681.	1.20E+12

-273.423	1774.	0.00				
10.8800	4.2390	-2378791.	-37258.	-0.00768	1725.	1.20E+12
-270.500	1847.	0.00				
11.0160	4.2265	-2439956.	-37697.	-0.00768	1770.	1.20E+12
-267.354	1927.	0.00				
11.1520	4.2139	-2501833.	-38130.	-0.00769	1815.	1.20E+12
-263.963	2014.	0.00				
11.2880	4.2014	-2564413.	-38558.	-0.00769	1860.	1.20E+12
-260.307	2110.	0.00				
11.4240	4.1888	-2627687.	-38980.	-0.00769	1906.	1.20E+12
-256.358	2216.	0.00				
11.5600	4.1763	-2691643.	-39395.	-0.00770	1952.	1.20E+12
-252.086	2334.	0.00				
11.6960	4.1637	-2756271.	-39802.	-0.00770	1999.	1.20E+12
-247.456	2467.	0.00				
11.8320	4.1511	-2821558.	-40202.	-0.00770	2046.	1.20E+12
-242.422	2618.	0.00				
11.9680	4.1386	-2887491.	-40593.	-0.00771	2094.	1.20E+12
-236.932	2791.	0.00				
12.1040	4.1260	-2954055.	-40975.	-0.00771	2143.	1.20E+12
-230.917	2992.	0.00				
12.2400	4.1134	-3021233.	-41346.	-0.00772	2191.	1.20E+12
-224.295	3228.	0.00				
12.3760	4.1008	-3089009.	-41706.	-0.00772	2240.	1.20E+12
-216.952	3513.	0.00				
12.5120	4.0882	-3157363.	-42054.	-0.00772	2290.	1.20E+12
-208.741	3863.	0.00				
12.6480	4.0756	-3226273.	-42387.	-0.00773	2340.	1.20E+12
-199.452	4307.	0.00				
12.7840	4.0630	-3295714.	-42704.	-0.00773	2390.	1.20E+12
-188.780	4894.	0.00				
12.9200	4.0503	-3365658.	-43002.	-0.00774	2441.	1.20E+12
-176.242	5715.	0.00				
13.0560	4.0377	-3436071.	-43277.	-0.00774	2492.	1.20E+12
-160.999	6969.	0.00				
13.1920	4.0251	-3506913.	-43523.	-0.00775	2544.	1.20E+12
-141.337	9204.	0.00				
13.3280	4.0124	-3578132.	-43731.	-0.00775	2595.	1.20E+12
-112.500	14789.	0.00				
13.4640	3.9998	-3649650.	-43798.	-0.00776	2647.	1.20E+12
29.8083	202666.	0.00				
13.6000	3.9871	-3721089.	-43680.	-0.00776	2699.	1.20E+12
115.1904	14570.	0.00				
13.7360	3.9744	-3792221.	-43467.	-0.00777	2750.	1.20E+12
145.5472	9288.	0.00				
13.8720	3.9617	-3862965.	-43212.	-0.00777	2802.	1.20E+12
167.4114	7142.	0.00				
14.0080	3.9491	-3933264.	-42924.	-0.00778	2853.	1.20E+12
185.2335	5934.	0.00				
14.1440	3.9364	-4003069.	-42609.	-0.00778	2903.	1.20E+12

200.6257	5145.	0.00				
14.2800	3.9237	-4072340.	-42270.	-0.00779	2954.	1.20E+12
214.3765	4583.	0.00				
14.4160	3.9109	-4141039.	-41910.	-0.00779	3003.	1.20E+12
226.9365	4159.	0.00				
14.5520	3.8982	-4209135.	-41530.	-0.00780	3053.	1.20E+12
238.5900	3826.	0.00				
14.6880	3.8855	-4276595.	-41132.	-0.00781	3102.	1.20E+12
249.5289	3556.	0.00				
14.8240	3.8727	-4343390.	-40716.	-0.00781	3150.	1.20E+12
259.8895	3333.	0.00				
14.9600	3.8600	-4409493.	-40284.	-0.00782	3198.	1.20E+12
269.7724	3144.	0.00				
15.0960	3.8472	-4474878.	-39836.	-0.00782	3246.	1.20E+12
279.2540	2983.	0.00				
15.2320	3.8345	-4539518.	-39373.	-0.00783	3292.	1.20E+12
288.3939	2843.	0.00				
15.3680	3.8217	-4603391.	-38895.	-0.00784	3339.	1.20E+12
297.2397	2720.	0.00				
15.5040	3.8089	-4666472.	-38403.	-0.00784	3385.	1.20E+12
305.8299	2611.	0.00				
15.6400	3.7961	-4728738.	-37897.	-0.00785	3430.	1.20E+12
314.1960	2514.	0.00				
15.7760	3.7833	-4790168.	-37378.	-0.00785	3474.	1.20E+12
322.3643	2427.	0.00				
15.9120	3.7704	-4850739.	-36845.	-0.00786	3518.	1.20E+12
330.3572	2349.	0.00				
16.0480	3.7576	-4910430.	-36299.	-0.00787	3561.	1.20E+12
338.1934	2277.	0.00				
16.1840	3.7448	-4969221.	-35741.	-0.00787	3604.	1.20E+12
345.8892	2212.	0.00				
16.3200	3.7319	-5027090.	-35171.	-0.00788	3646.	1.20E+12
353.4585	2152.	0.00				
16.4560	3.7190	-5084017.	-34588.	-0.00789	3687.	1.20E+12
360.9135	2096.	0.00				
16.5920	3.7062	-5139984.	-33993.	-0.00790	3728.	1.20E+12
368.2650	2045.	0.00				
16.7280	3.6933	-5194969.	-33386.	-0.00790	3768.	1.20E+12
375.5225	1998.	0.00				
16.8640	3.6804	-5248955.	-32767.	-0.00791	3807.	1.20E+12
382.6941	1954.	0.00				
17.0000	3.6674	-5301921.	-32137.	-0.00792	3845.	1.20E+12
389.7875	1913.	0.00				
17.1360	3.6545	-5353849.	-31495.	-0.00792	3883.	1.20E+12
396.8092	1874.	0.00				
17.2720	3.6416	-5404720.	-30842.	-0.00793	3920.	1.20E+12
403.7653	1838.	0.00				
17.4080	3.6286	-5454516.	-30177.	-0.00794	3956.	1.20E+12
410.6611	1805.	0.00				
17.5440	3.6157	-5503218.	-29501.	-0.00795	3991.	1.20E+12

417.5016	1773.	0.00				
17.6800	3.6027	-5550808.	-28814.	-0.00795	4026.	1.20E+12
424.2912	1743.	0.00				
17.8160	3.5897	-5597268.	-28116.	-0.00796	4060.	1.20E+12
431.0339	1715.	0.00				
17.9520	3.5767	-5642580.	-27407.	-0.00797	4092.	1.20E+12
437.7334	1688.	0.00				
18.0880	3.5637	-5686726.	-26688.	-0.00798	4125.	1.20E+12
444.3932	1662.	0.00				
18.2240	3.5507	-5729688.	-25957.	-0.00798	4156.	1.20E+12
451.0162	1638.	0.00				
18.3600	3.5376	-5771449.	-25216.	-0.00799	4186.	1.20E+12
457.6055	1615.	0.00				
18.4960	3.5246	-5811991.	-24463.	-0.00800	4215.	1.20E+12
464.1636	1593.	0.00				
18.6320	3.5115	-5851298.	-23701.	-0.00801	4244.	1.20E+12
470.6929	1573.	0.00				
18.7680	3.4985	-5889350.	-22927.	-0.00802	4271.	1.20E+12
477.1957	1553.	0.00				
18.9040	3.4854	-5926131.	-22143.	-0.00802	4298.	1.20E+12
483.6742	1534.	0.00				
19.0400	3.4723	-5961625.	-21348.	-0.00803	4324.	1.20E+12
490.1303	1516.	0.00				
19.1760	3.4592	-5995812.	-20543.	-0.00804	4349.	1.20E+12
496.5657	1498.	0.00				
19.3120	3.4460	-6028678.	-19728.	-0.00805	4373.	1.20E+12
502.9823	1482.	0.00				
19.4480	3.4329	-6060203.	-18901.	-0.00806	4395.	1.20E+12
509.3815	1466.	0.00				
19.5840	3.4197	-6090372.	-18065.	-0.00806	4417.	1.20E+12
515.7648	1451.	0.00				
19.7200	3.4066	-6119167.	-17218.	-0.00807	4438.	1.20E+12
522.1337	1436.	0.00				
19.8560	3.3934	-6146572.	-16361.	-0.00808	4458.	1.20E+12
528.4895	1422.	0.00				
19.9920	3.3802	-6172569.	-15493.	-0.00809	4477.	1.20E+12
534.8333	1408.	0.00				
20.1280	3.3670	-6197141.	-14615.	-0.00810	4495.	1.20E+12
541.1664	1395.	0.00				
20.2640	3.3538	-6220272.	-13727.	-0.00811	4511.	1.20E+12
547.4897	1383.	0.00				
20.4000	3.3405	-6241945.	-12828.	-0.00812	4527.	1.20E+12
553.8044	1370.	0.00				
20.5360	3.3273	-6262143.	-11919.	-0.00812	4542.	1.20E+12
560.1114	1359.	0.00				
20.6720	3.3140	-6280849.	-11000.	-0.00813	4555.	1.20E+12
566.4116	1347.	0.00				
20.8080	3.3007	-6298047.	-10070.	-0.00814	4568.	1.20E+12
572.7059	1337.	0.00				
20.9440	3.2874	-6313719.	-9131.	-0.00815	4579.	1.20E+12

578.9950	1326.	0.00				
21.0800	3.2741	-6327849.	-8181.	-0.00816	4590.	1.20E+12
585.2798	1316.	0.00				
21.2160	3.2608	-6340420.	-7220.	-0.00817	4599.	1.20E+12
591.5611	1306.	0.00				
21.3520	3.2475	-6351416.	-6250.	-0.00818	4607.	1.20E+12
597.8394	1297.	0.00				
21.4880	3.2341	-6360819.	-5269.	-0.00818	4613.	1.20E+12
604.1154	1287.	0.00				
21.6240	3.2208	-6368613.	-4278.	-0.00819	4619.	1.20E+12
610.3898	1278.	0.00				
21.7600	3.2074	-6374782.	-3277.	-0.00820	4624.	1.20E+12
616.6632	1270.	0.00				
21.8960	3.1940	-6379308.	-2265.	-0.00821	4627.	1.20E+12
622.9362	1261.	0.00				
22.0320	3.1806	-6382175.	-1243.	-0.00822	4629.	1.20E+12
629.2092	1253.	0.00				
22.1680	3.1672	-6383366.	-211.293	-0.00823	4630.	1.20E+12
635.4828	1245.	0.00				
22.3040	3.1537	-6382864.	830.9352	-0.00824	4629.	1.20E+12
641.7575	1238.	0.00				
22.4400	3.1403	-6380654.	1883.	-0.00824	4628.	1.20E+12
648.0337	1230.	0.00				
22.5760	3.1268	-6376717.	2946.	-0.00825	4625.	1.20E+12
654.3120	1223.	0.00				
22.7120	3.1133	-6371037.	4019.	-0.00826	4621.	1.20E+12
660.5926	1216.	0.00				
22.8480	3.0999	-6363599.	5102.	-0.00827	4615.	1.20E+12
666.8762	1209.	0.00				
22.9840	3.0863	-6354384.	6196.	-0.00828	4609.	1.20E+12
673.1629	1202.	0.00				
23.1200	3.0728	-6343376.	7300.	-0.00829	4601.	1.20E+12
679.4532	1196.	0.00				
23.2560	3.0593	-6330558.	8414.	-0.00830	4591.	1.20E+12
685.7475	1190.	0.00				
23.3920	3.0457	-6315914.	9538.	-0.00830	4581.	1.20E+12
692.0461	1184.	0.00				
23.5280	3.0322	-6299427.	10672.	-0.00831	4569.	1.20E+12
698.3493	1178.	0.00				
23.6640	3.0186	-6281079.	11817.	-0.00832	4556.	1.20E+12
704.6574	1172.	0.00				
23.8000	3.0050	-6260855.	12972.	-0.00833	4541.	1.20E+12
710.9708	1166.	0.00				
23.9360	2.9914	-6238738.	14138.	-0.00834	4525.	1.20E+12
717.2897	1161.	0.00				
24.0720	2.9778	-6214710.	15314.	-0.00835	4507.	1.20E+12
723.6143	1155.	0.00				
24.2080	2.9642	-6188754.	16500.	-0.00836	4489.	1.20E+12
729.9451	1150.	0.00				
24.3440	2.9505	-6160854.	17696.	-0.00836	4468.	1.20E+12

736.2821	1145.	0.00				
24.4800	2.9369	-6130994.	18903.	-0.00837	4447.	1.20E+12
742.6257	1140.	0.00				
24.6160	2.9232	-6099155.	20120.	-0.00838	4424.	1.20E+12
748.9760	1135.	0.00				
24.7520	2.9095	-6065322.	21348.	-0.00839	4399.	1.20E+12
755.3334	1130.	0.00				
24.8880	2.8958	-6029477.	22585.	-0.00840	4373.	1.20E+12
761.6979	1126.	0.00				
25.0240	2.8821	-5991603.	23834.	-0.00841	4346.	1.20E+12
768.0699	1121.	0.00				
25.1600	2.8684	-5951683.	25092.	-0.00841	4317.	1.20E+12
774.4495	1117.	0.00				
25.2960	2.8546	-5909701.	26362.	-0.00842	4286.	1.20E+12
780.8369	1113.	0.00				
25.4320	2.8409	-5865639.	27641.	-0.00843	4254.	1.20E+12
787.2323	1108.	0.00				
25.5680	2.8271	-5819480.	28931.	-0.00844	4221.	1.20E+12
793.6359	1104.	0.00				
25.7040	2.8134	-5771208.	30232.	-0.00845	4186.	1.20E+12
800.0477	1100.	0.00				
25.8400	2.7996	-5720805.	31542.	-0.00845	4149.	1.20E+12
806.4681	1096.	0.00				
25.9760	2.7858	-5668253.	32864.	-0.00846	4111.	1.20E+12
812.8971	1093.	0.00				
26.1120	2.7719	-5613537.	34196.	-0.00847	4071.	1.20E+12
819.3348	1089.	0.00				
26.2480	2.7581	-5556638.	35538.	-0.00848	4030.	1.20E+12
825.7815	1085.	0.00				
26.3840	2.7443	-5497540.	36891.	-0.00848	3987.	1.20E+12
832.2372	1082.	0.00				
26.5200	2.7304	-5436226.	38255.	-0.00849	3943.	1.20E+12
838.7021	1078.	0.00				
26.6560	2.7166	-5372677.	39629.	-0.00850	3897.	1.20E+12
845.1763	1075.	0.00				
26.7920	2.7027	-5306878.	41013.	-0.00851	3849.	1.20E+12
851.6599	1071.	0.00				
26.9280	2.6888	-5238810.	42408.	-0.00851	3800.	1.20E+12
858.1531	1068.	0.00				
27.0640	2.6749	-5168456.	43814.	-0.00852	3749.	1.20E+12
864.6559	1065.	0.00				
27.2000	2.6610	-5095800.	45231.	-0.00853	3696.	1.20E+12
871.1684	1062.	0.00				
27.3360	2.6471	-5020823.	46658.	-0.00853	3642.	1.20E+12
877.6908	1059.	0.00				
27.4720	2.6331	-4943509.	48096.	-0.00854	3585.	1.20E+12
884.2231	1056.	0.00				
27.6080	2.6192	-4863839.	49544.	-0.00855	3528.	1.20E+12
890.7654	1053.	0.00				
27.7440	2.6052	-4781797.	51003.	-0.00855	3468.	1.20E+12

897.3178	1050.	0.00				
27.8800	2.5913	-4697366.	52473.	-0.00856	3407.	1.20E+12
903.8804	1047.	0.00				
28.0160	2.5773	-4610526.	53953.	-0.00857	3344.	1.20E+12
910.4533	1044.	0.00				
28.1520	2.5633	-4521262.	55445.	-0.00857	3279.	1.20E+12
917.0365	1042.	0.00				
28.2880	2.5493	-4429555.	56946.	-0.00858	3213.	1.20E+12
923.6301	1039.	0.00				
28.4240	2.5353	-4335389.	58459.	-0.00859	3144.	1.20E+12
930.2342	1036.	0.00				
28.5600	2.5213	-4238744.	59983.	-0.00859	3074.	1.20E+12
936.8488	1034.	0.00				
28.6960	2.5073	-4139605.	61517.	-0.00860	3002.	1.20E+12
943.4740	1031.	0.00				
28.8320	2.4932	-4037953.	63062.	-0.00860	2929.	1.20E+12
950.1098	1029.	0.00				
28.9680	2.4792	-3933770.	64618.	-0.00861	2853.	1.20E+12
956.7564	1027.	0.00				
29.1040	2.4651	-3827038.	66185.	-0.00861	2776.	1.20E+12
963.4136	1024.	0.00				
29.2400	2.4511	-3717741.	67763.	-0.00862	2696.	1.20E+12
970.0817	1022.	0.00				
29.3760	2.4370	-3605860.	69352.	-0.00862	2615.	1.20E+12
976.7606	1020.	0.00				
29.5120	2.4229	-3491378.	70951.	-0.00863	2532.	1.20E+12
983.4503	1018.	0.00				
29.6480	2.4088	-3374276.	72561.	-0.00863	2447.	1.20E+12
990.1509	1016.	0.00				
29.7840	2.3947	-3254537.	74183.	-0.00864	2360.	1.20E+12
996.8625	1013.	0.00				
29.9200	2.3806	-3132143.	75815.	-0.00864	2272.	1.20E+12
1004.	1011.	0.00				
30.0560	2.3665	-3007076.	77459.	-0.00865	2181.	1.20E+12
1010.	1009.	0.00				
30.1920	2.3524	-2879318.	79113.	-0.00865	2088.	1.20E+12
1017.	1007.	0.00				
30.3280	2.3383	-2748852.	80778.	-0.00865	1994.	1.20E+12
1024.	1006.	0.00				
30.4640	2.3242	-2615658.	82455.	-0.00866	1897.	1.20E+12
1031.	1004.	0.00				
30.6000	2.3100	-2479719.	84142.	-0.00866	1799.	1.20E+12
1037.	1002.	0.00				
30.7360	2.2959	-2341018.	85841.	-0.00866	1698.	1.20E+12
1044.	999.9761	0.00				
30.8720	2.2818	-2199535.	87550.	-0.00867	1595.	1.20E+12
1051.	998.2041	0.00				
31.0080	2.2676	-2055254.	89271.	-0.00867	1491.	1.20E+12
1058.	996.4686	0.00				
31.1440	2.2535	-1908155.	91003.	-0.00867	1384.	1.20E+12

1065.	994.7691	0.00					
	31.2800	2.2393	-1758221.	92746.	-0.00868	1275.	1.20E+12
1071.	993.1047	0.00					
	31.4160	2.2251	-1605433.	94500.	-0.00868	1164.	1.20E+12
1078.	991.4750	0.00					
	31.5520	2.2110	-1449773.	96265.	-0.00868	1052.	1.20E+12
1085.	989.8792	0.00					
	31.6880	2.1968	-1291223.	98042.	-0.00868	936.5070	1.20E+12
1092.	988.3167	0.00					
	31.8240	2.1826	-1129765.	99829.	-0.00868	819.4034	1.20E+12
1099.	986.7870	0.00					
	31.9600	2.1685	-965380.	101628.	-0.00868	700.1771	1.20E+12
1106.	985.2895	0.00					
	32.0960	2.1543	-798049.	103439.	-0.00869	578.8147	1.20E+12
1113.	983.8236	0.00					
	32.2320	2.1401	-627756.	105260.	-0.00869	455.3030	1.20E+12
1120.	982.3888	0.00					
	32.3680	2.1259	-454480.	107093.	-0.00869	329.6285	1.20E+12
1126.	980.9846	0.00					
	32.5040	2.1118	-278204.	108937.	-0.00869	201.7780	1.20E+12
1133.	979.6105	0.00					
	32.6400	2.0976	-98910.	110792.	-0.00869	71.7380	1.20E+12
1140.	978.2660	0.00					
	32.7760	2.0834	83422.	112659.	-0.00869	60.5048	1.20E+12
1147.	976.9507	0.00					
	32.9120	2.0692	268809.	114537.	-0.00869	194.9640	1.20E+12
1154.	975.6639	0.00					
	33.0480	2.0551	457271.	116427.	-0.00869	331.6529	1.20E+12
1161.	974.4055	0.00					
	33.1840	2.0409	648826.	118328.	-0.00869	470.5851	1.20E+12
1168.	973.1748	0.00					
	33.3200	2.0267	843493.	120240.	-0.00869	611.7741	1.20E+12
1175.	971.9714	0.00					
	33.4560	2.0125	1041289.	122164.	-0.00868	755.2333	1.20E+12
1182.	970.7951	0.00					
	33.5920	1.9984	1242234.	124099.	-0.00868	900.9763	1.20E+12
1189.	969.6453	0.00					
	33.7280	1.9842	1446347.	126045.	-0.00868	1049.	1.20E+12
1196.	968.5217	0.00					
	33.8640	1.9700	1653646.	128003.	-0.00868	1199.	1.20E+12
1203.	967.4240	0.00					
	34.0000	1.9559	1864151.	129973.	-0.00868	1352.	1.20E+12
1210.	966.3517	0.00					
	34.1360	1.9417	2077878.	131954.	-0.00867	1507.	1.20E+12
1217.	965.3045	0.00					
	34.2720	1.9275	2294849.	133947.	-0.00867	1664.	1.20E+12
1225.	964.2822	0.00					
	34.4080	1.9134	2515081.	135951.	-0.00867	1824.	1.20E+12
1232.	963.2842	0.00					
	34.5440	1.8993	2738593.	137967.	-0.00866	1986.	1.20E+12

1239.	962.3105	0.00					
	34.6800	1.8851	2965405.	139994.	-0.00866	2151.	1.20E+12
1246.	961.3605	0.00					
	34.8160	1.8710	3195534.	142033.	-0.00866	2318.	1.20E+12
1253.	960.4341	0.00					
	34.9520	1.8569	3429001.	144084.	-0.00865	2487.	1.20E+12
1260.	959.5310	0.00					
	35.0880	1.8427	3665824.	146146.	-0.00865	2659.	1.20E+12
1267.	958.6508	0.00					
	35.2240	1.8286	3906022.	148220.	-0.00864	2833.	1.20E+12
1274.	957.7933	0.00					
	35.3600	1.8145	4149613.	150305.	-0.00864	3010.	1.20E+12
1281.	956.9582	0.00					
	35.4960	1.8005	4396618.	152403.	-0.00863	3189.	1.20E+12
1289.	956.1454	0.00					
	35.6320	1.7864	4647056.	154512.	-0.00862	3370.	1.20E+12
1296.	955.3544	0.00					
	35.7680	1.7723	4900944.	156632.	-0.00862	3555.	1.20E+12
1303.	954.5852	0.00					
	35.9040	1.7582	5158304.	158765.	-0.00861	3741.	1.20E+12
1310.	953.8374	0.00					
	36.0400	1.7442	5419152.	160909.	-0.00860	3930.	1.20E+12
1317.	953.1109	0.00					
	36.1760	1.7302	5683510.	163065.	-0.00860	4122.	1.20E+12
1325.	952.4054	0.00					
	36.3120	1.7161	5951396.	165232.	-0.00859	4316.	1.20E+12
1332.	951.7207	0.00					
	36.4480	1.7021	6222829.	167410.	-0.00858	4513.	1.20E+12
1336.	949.1921	0.00					
	36.5840	1.6881	6497821.	169594.	-0.00857	4713.	1.20E+12
1341.	946.4927	0.00					
	36.7200	1.6742	6776385.	171786.	-0.00856	4915.	1.20E+12
1345.	943.8267	0.00					
	36.8560	1.6602	7058531.	173985.	-0.00855	5119.	1.20E+12
1349.	941.1935	0.00					
	36.9920	1.6462	7344271.	176191.	-0.00854	5327.	1.20E+12
1354.	938.5928	0.00					
	37.1280	1.6323	7633617.	178403.	-0.00853	5537.	1.20E+12
1358.	936.0242	0.00					
	37.2640	1.6184	7926579.	180623.	-0.00852	5749.	1.20E+12
1362.	933.4872	0.00					
	37.4000	1.6045	8223170.	182850.	-0.00851	5964.	1.20E+12
1367.	930.9815	0.00					
	37.5360	1.5906	8523401.	185083.	-0.00850	6182.	1.20E+12
1371.	928.5068	0.00					
	37.6720	1.5767	8827282.	187324.	-0.00849	6402.	1.20E+12
1375.	926.0627	0.00					
	37.8080	1.5629	9134826.	189571.	-0.00848	6625.	1.20E+12
1379.	923.6488	0.00					
	37.9440	1.5491	9446043.	191826.	-0.00846	6851.	1.20E+12

1384.	921.2648	0.00					
38.0800	1.5353	9760946.	194087.	-0.00845	7079.	1.20E+12	
1388.	918.9103	0.00					
38.2160	1.5215	1.01E+07	196356.	-0.00844	7311.	1.20E+12	
1392.	916.5851	0.00					
38.3520	1.5077	1.04E+07	198631.	-0.00842	7544.	1.20E+12	
1396.	914.2888	0.00					
38.4880	1.4940	1.07E+07	200913.	-0.00841	7781.	1.20E+12	
1400.	912.0211	0.00					
38.6240	1.4803	1.11E+07	203176.	-0.00839	8020.	1.20E+12	
1373.	951.8905	0.00					
38.7600	1.4666	1.14E+07	205391.	-0.00838	8262.	1.20E+12	
1341.	1001.	0.00					
38.8960	1.4530	1.17E+07	207553.	-0.00836	8506.	1.20E+12	
1308.	1057.	0.00					
39.0320	1.4393	1.21E+07	209658.	-0.00835	8753.	1.20E+12	
1272.	1121.	0.00					
39.1680	1.4257	1.24E+07	211703.	-0.00833	9003.	1.20E+12	
1234.	1196.	0.00					
39.3040	1.4121	1.28E+07	213683.	-0.00831	9254.	1.20E+12	
1193.	1284.	0.00					
39.4400	1.3986	1.31E+07	215593.	-0.00829	9508.	1.20E+12	
1148.	1390.	0.00					
39.5760	1.3851	1.35E+07	217428.	-0.00828	9765.	1.20E+12	
1100.	1521.	0.00					
39.7120	1.3716	1.38E+07	219179.	-0.00826	10023.	1.20E+12	
1046.	1687.	0.00					
39.8480	1.3581	1.42E+07	220837.	-0.00824	10284.	1.20E+12	
986.0703	1905.	0.00					
39.9840	1.3447	1.45E+07	222390.	-0.00822	10546.	1.20E+12	
916.9099	2211.	0.00					
40.1200	1.3313	1.49E+07	223820.	-0.00820	10810.	1.20E+12	
834.7109	2678.	0.00					
40.2560	1.3179	1.53E+07	225097.	-0.00818	11076.	1.20E+12	
731.1857	3502.	0.00					
40.3920	1.3046	1.56E+07	226170.	-0.00816	11343.	1.20E+12	
583.7039	5514.	0.00					
40.5280	1.2913	1.60E+07	226790.	-0.00814	11611.	1.20E+12	
175.9477	60844.	0.00					
40.6640	1.2780	1.64E+07	226465.	-0.00811	11880.	1.20E+12	
-574.255	5737.	0.00					
40.8000	1.2648	1.67E+07	225403.	-0.00809	12147.	1.20E+12	
-727.848	3584.	0.00					
40.9360	1.2516	1.71E+07	224127.	-0.00807	12413.	1.20E+12	
-835.489	2729.	0.00					
41.0720	1.2385	1.75E+07	222693.	-0.00805	12678.	1.20E+12	
-921.395	2252.	0.00					
41.2080	1.2253	1.78E+07	221130.	-0.00802	12941.	1.20E+12	
-994.193	1941.	0.00					
41.3440	1.2123	1.82E+07	219456.	-0.00800	13201.	1.20E+12	

-1058.	1719.	0.00				
41.4800	1.1992	1.86E+07	217682.	-0.00797	13460.	1.20E+12
-1115.	1552.	0.00				
41.6160	1.1863	1.89E+07	215857.	-0.00795	13717.	1.20E+12
-1121.	1542.	0.00				
41.7520	1.1733	1.93E+07	214030.	-0.00792	13971.	1.20E+12
-1118.	1555.	0.00				
41.8880	1.1604	1.96E+07	212207.	-0.00789	14223.	1.20E+12
-1115.	1569.	0.00				
42.0240	1.1475	2.00E+07	210389.	-0.00787	14473.	1.20E+12
-1113.	1582.	0.00				
42.1600	1.1347	2.03E+07	208576.	-0.00784	14721.	1.20E+12
-1110.	1596.	0.00				
42.2960	1.1220	2.06E+07	206767.	-0.00781	14967.	1.20E+12
-1107.	1610.	0.00				
42.4320	1.1092	2.10E+07	204963.	-0.00778	15211.	1.20E+12
-1104.	1624.	0.00				
42.5680	1.0965	2.13E+07	203165.	-0.00775	15452.	1.20E+12
-1101.	1638.	0.00				
42.7040	1.0839	2.16E+07	201370.	-0.00773	15692.	1.20E+12
-1098.	1653.	0.00				
42.8400	1.0713	2.20E+07	199581.	-0.00770	15929.	1.20E+12
-1095.	1668.	0.00				
42.9760	1.0588	2.23E+07	197797.	-0.00767	16164.	1.20E+12
-1092.	1683.	0.00				
43.1120	1.0463	2.26E+07	196018.	-0.00764	16397.	1.20E+12
-1089.	1698.	0.00				
43.2480	1.0339	2.29E+07	194244.	-0.00760	16628.	1.20E+12
-1086.	1714.	0.00				
43.3840	1.0215	2.32E+07	192474.	-0.00757	16857.	1.20E+12
-1082.	1729.	0.00				
43.5200	1.0092	2.36E+07	190710.	-0.00754	17084.	1.20E+12
-1079.	1745.	0.00				
43.6560	0.9969	2.39E+07	188952.	-0.00751	17309.	1.20E+12
-1076.	1762.	0.00				
43.7920	0.9847	2.42E+07	187198.	-0.00748	17531.	1.20E+12
-1073.	1778.	0.00				
43.9280	0.9725	2.45E+07	185450.	-0.00744	17752.	1.20E+12
-1070.	1795.	0.00				
44.0640	0.9604	2.48E+07	183707.	-0.00741	17970.	1.20E+12
-1066.	1812.	0.00				
44.2000	0.9483	2.51E+07	181969.	-0.00738	18187.	1.20E+12
-1063.	1830.	0.00				
44.3360	0.9363	2.54E+07	180236.	-0.00734	18401.	1.20E+12
-1060.	1847.	0.00				
44.4720	0.9243	2.57E+07	178510.	-0.00731	18613.	1.20E+12
-1056.	1865.	0.00				
44.6080	0.9124	2.60E+07	176788.	-0.00727	18824.	1.20E+12
-1053.	1884.	0.00				
44.7440	0.9006	2.62E+07	175072.	-0.00724	19032.	1.20E+12

-1050.	1902.	0.00				
44.8800	0.8888	2.65E+07	173362.	-0.00720	19238.	1.20E+12
-1046.	1921.	0.00				
45.0160	0.8771	2.68E+07	171657.	-0.00716	19442.	1.20E+12
-1043.	1940.	0.00				
45.1520	0.8654	2.71E+07	169958.	-0.00713	19645.	1.20E+12
-1039.	1960.	0.00				
45.2880	0.8538	2.74E+07	168265.	-0.00709	19845.	1.20E+12
-1036.	1980.	0.00				
45.4240	0.8423	2.76E+07	166577.	-0.00705	20043.	1.20E+12
-1032.	2000.	0.00				
45.5600	0.8308	2.79E+07	164896.	-0.00701	20239.	1.20E+12
-1029.	2021.	0.00				
45.6960	0.8194	2.82E+07	163220.	-0.00698	20433.	1.20E+12
-1025.	2042.	0.00				
45.8320	0.8080	2.84E+07	161550.	-0.00694	20625.	1.20E+12
-1021.	2063.	0.00				
45.9680	0.7967	2.87E+07	159886.	-0.00690	20816.	1.20E+12
-1018.	2085.	0.00				
46.1040	0.7855	2.90E+07	158227.	-0.00686	21004.	1.20E+12
-1014.	2107.	0.00				
46.2400	0.7744	2.92E+07	156575.	-0.00682	21190.	1.20E+12
-1010.	2130.	0.00				
46.3760	0.7633	2.95E+07	154929.	-0.00678	21375.	1.20E+12
-1007.	2153.	0.00				
46.5120	0.7522	2.97E+07	153289.	-0.00674	21557.	1.20E+12
-1003.	2176.	0.00				
46.6480	0.7413	3.00E+07	151656.	-0.00670	21738.	1.20E+12
-999.144	2200.	0.00				
46.7840	0.7304	3.02E+07	150028.	-0.00666	21916.	1.20E+12
-995.318	2224.	0.00				
46.9200	0.7195	3.05E+07	148407.	-0.00662	22093.	1.20E+12
-991.462	2249.	0.00				
47.0560	0.7088	3.07E+07	146792.	-0.00658	22267.	1.20E+12
-987.576	2274.	0.00				
47.1920	0.6981	3.09E+07	145184.	-0.00653	22440.	1.20E+12
-983.661	2300.	0.00				
47.3280	0.6874	3.12E+07	143582.	-0.00649	22611.	1.20E+12
-979.716	2326.	0.00				
47.4640	0.6769	3.14E+07	141986.	-0.00645	22780.	1.20E+12
-975.742	2353.	0.00				
47.6000	0.6664	3.16E+07	140397.	-0.00641	22947.	1.20E+12
-971.737	2380.	0.00				
47.7360	0.6560	3.19E+07	138814.	-0.00636	23112.	1.20E+12
-967.702	2408.	0.00				
47.8720	0.6456	3.21E+07	137238.	-0.00632	23276.	1.20E+12
-963.637	2436.	0.00				
48.0080	0.6353	3.23E+07	133496.	-0.00628	23437.	1.20E+12
-3622.	9305.	0.00				
48.1440	0.6251	3.25E+07	127584.	-0.00623	23592.	1.20E+12

-3623.	9459.	0.00				
48.2800	0.6150	3.27E+07	121670.	-0.00619	23739.	1.20E+12
-3624.	9616.	0.00				
48.4160	0.6049	3.29E+07	115756.	-0.00614	23880.	1.20E+12
-3624.	9776.	0.00				
48.5520	0.5949	3.31E+07	109843.	-0.00610	24013.	1.20E+12
-3623.	9938.	0.00				
48.6880	0.5850	3.33E+07	103932.	-0.00605	24140.	1.20E+12
-3622.	10103.	0.00				
48.8240	0.5752	3.34E+07	98023.	-0.00601	24259.	1.20E+12
-3620.	10271.	0.00				
48.9600	0.5654	3.36E+07	92117.	-0.00596	24372.	1.20E+12
-3618.	10442.	0.00				
49.0960	0.5557	3.37E+07	86214.	-0.00592	24478.	1.20E+12
-3615.	10616.	0.00				
49.2320	0.5461	3.39E+07	80317.	-0.00587	24576.	1.20E+12
-3612.	10793.	0.00				
49.3680	0.5366	3.40E+07	74426.	-0.00582	24668.	1.20E+12
-3608.	10974.	0.00				
49.5040	0.5271	3.41E+07	68541.	-0.00578	24752.	1.20E+12
-3604.	11157.	0.00				
49.6400	0.5177	3.42E+07	62664.	-0.00573	24830.	1.20E+12
-3599.	11344.	0.00				
49.7760	0.5084	3.43E+07	56795.	-0.00568	24901.	1.20E+12
-3593.	11535.	0.00				
49.9120	0.4992	3.44E+07	50936.	-0.00564	24964.	1.20E+12
-3587.	11729.	0.00				
50.0480	0.4900	3.45E+07	45087.	-0.00559	25021.	1.20E+12
-3581.	11926.	0.00				
50.1840	0.4809	3.46E+07	39249.	-0.00554	25071.	1.20E+12
-3574.	12127.	0.00				
50.3200	0.4719	3.46E+07	33423.	-0.00550	25114.	1.20E+12
-3566.	12332.	0.00				
50.4560	0.4630	3.47E+07	27610.	-0.00545	25150.	1.20E+12
-3558.	12541.	0.00				
50.5920	0.4541	3.47E+07	21811.	-0.00540	25180.	1.20E+12
-3549.	12754.	0.00				
50.7280	0.4453	3.47E+07	16027.	-0.00535	25202.	1.20E+12
-3540.	12971.	0.00				
50.8640	0.4366	3.48E+07	10258.	-0.00531	25217.	1.20E+12
-3530.	13192.	0.00				
51.0000	0.4280	3.48E+07	4507.	-0.00526	25226.	1.20E+12
-3519.	13418.	0.00				
51.1360	0.4195	3.48E+07	-1227.	-0.00521	25228.	1.20E+12
-3508.	13648.	0.00				
51.2720	0.4110	3.48E+07	-6943.	-0.00517	25223.	1.20E+12
-3496.	13883.	0.00				
51.4080	0.4026	3.48E+07	-12638.	-0.00512	25212.	1.20E+12
-3484.	14122.	0.00				
51.5440	0.3943	3.47E+07	-18314.	-0.00507	25193.	1.20E+12

-3471.	14366.	0.00				
51.6800	0.3861	3.47E+07	-23967.	-0.00502	25168.	1.20E+12
-3457.	14616.	0.00				
51.8160	0.3779	3.47E+07	-29598.	-0.00498	25137.	1.20E+12
-3443.	14870.	0.00				
51.9520	0.3698	3.46E+07	-35206.	-0.00493	25098.	1.20E+12
-3429.	15130.	0.00				
52.0880	0.3618	3.45E+07	-40789.	-0.00488	25053.	1.20E+12
-3413.	15396.	0.00				
52.2240	0.3539	3.45E+07	-46346.	-0.00484	25002.	1.20E+12
-3397.	15667.	0.00				
52.3600	0.3460	3.44E+07	-51877.	-0.00479	24944.	1.20E+12
-3381.	15944.	0.00				
52.4960	0.3383	3.43E+07	-57380.	-0.00474	24879.	1.20E+12
-3363.	16228.	0.00				
52.6320	0.3306	3.42E+07	-62854.	-0.00470	24808.	1.20E+12
-3345.	16517.	0.00				
52.7680	0.3229	3.41E+07	-68299.	-0.00465	24730.	1.20E+12
-3327.	16814.	0.00				
52.9040	0.3154	3.40E+07	-73713.	-0.00460	24646.	1.20E+12
-3308.	17117.	0.00				
53.0400	0.3079	3.39E+07	-79095.	-0.00456	24556.	1.20E+12
-3288.	17427.	0.00				
53.1760	0.3005	3.37E+07	-84444.	-0.00451	24459.	1.20E+12
-3267.	17744.	0.00				
53.3120	0.2932	3.36E+07	-89759.	-0.00446	24356.	1.20E+12
-3246.	18070.	0.00				
53.4480	0.2859	3.34E+07	-95039.	-0.00442	24246.	1.20E+12
-3224.	18403.	0.00				
53.5840	0.2788	3.33E+07	-100282.	-0.00437	24131.	1.20E+12
-3202.	18744.	0.00				
53.7200	0.2717	3.31E+07	-105488.	-0.00433	24009.	1.20E+12
-3178.	19094.	0.00				
53.8560	0.2646	3.29E+07	-110656.	-0.00428	23881.	1.20E+12
-3154.	19453.	0.00				
53.9920	0.2577	3.27E+07	-115783.	-0.00424	23747.	1.20E+12
-3129.	19821.	0.00				
54.1280	0.2508	3.25E+07	-120870.	-0.00419	23607.	1.20E+12
-3104.	20199.	0.00				
54.2640	0.2440	3.23E+07	-125914.	-0.00415	23461.	1.20E+12
-3078.	20587.	0.00				
54.4000	0.2372	3.21E+07	-130915.	-0.00411	23309.	1.20E+12
-3051.	20986.	0.00				
54.5360	0.2306	3.19E+07	-135871.	-0.00406	23151.	1.20E+12
-3023.	21396.	0.00				
54.6720	0.2240	3.17E+07	-140781.	-0.00402	22987.	1.20E+12
-2994.	21817.	0.00				
54.8080	0.2175	3.15E+07	-145644.	-0.00398	22818.	1.20E+12
-2965.	22251.	0.00				
54.9440	0.2110	3.12E+07	-150458.	-0.00393	22642.	1.20E+12

-2935.	22698.	0.00				
55.0800	0.2046	3.10E+07	-155222.	-0.00389	22461.	1.20E+12
-2904.	23159.	0.00				
55.2160	0.1983	3.07E+07	-159935.	-0.00385	22275.	1.20E+12
-2872.	23634.	0.00				
55.3520	0.1921	3.04E+07	-164595.	-0.00381	22083.	1.20E+12
-2839.	24124.	0.00				
55.4880	0.1859	3.02E+07	-169200.	-0.00377	21885.	1.20E+12
-2805.	24631.	0.00				
55.6240	0.1798	2.99E+07	-173750.	-0.00373	21682.	1.20E+12
-2771.	25154.	0.00				
55.7600	0.1737	2.96E+07	-178243.	-0.00369	21474.	1.20E+12
-2735.	25696.	0.00				
55.8960	0.1677	2.93E+07	-182677.	-0.00365	21260.	1.20E+12
-2699.	26257.	0.00				
56.0320	0.1618	2.90E+07	-187050.	-0.00361	21041.	1.20E+12
-2661.	26838.	0.00				
56.1680	0.1560	2.87E+07	-191361.	-0.00357	20817.	1.20E+12
-2622.	27442.	0.00				
56.3040	0.1502	2.84E+07	-195609.	-0.00353	20588.	1.20E+12
-2583.	28069.	0.00				
56.4400	0.1444	2.81E+07	-199791.	-0.00349	20354.	1.20E+12
-2542.	28721.	0.00				
56.5760	0.1388	2.77E+07	-203905.	-0.00345	20115.	1.20E+12
-2500.	29401.	0.00				
56.7120	0.1332	2.74E+07	-207950.	-0.00341	19872.	1.20E+12
-2457.	30110.	0.00				
56.8480	0.1276	2.71E+07	-211924.	-0.00338	19623.	1.20E+12
-2413.	30851.	0.00				
56.9840	0.1222	2.67E+07	-215825.	-0.00334	19370.	1.20E+12
-2367.	31626.	0.00				
57.1200	0.1167	2.64E+07	-219650.	-0.00330	19112.	1.20E+12
-2320.	32440.	0.00				
57.2560	0.1114	2.60E+07	-223397.	-0.00327	18850.	1.20E+12
-2272.	33294.	0.00				
57.3920	0.1061	2.56E+07	-227065.	-0.00323	18583.	1.20E+12
-2222.	34194.	0.00				
57.5280	0.1008	2.52E+07	-230650.	-0.00320	18312.	1.20E+12
-2171.	35144.	0.00				
57.6640	0.09563	2.49E+07	-234150.	-0.00316	18037.	1.20E+12
-2118.	36149.	0.00				
57.8000	0.09049	2.45E+07	-237562.	-0.00313	17758.	1.20E+12
-2064.	37217.	0.00				
57.9360	0.08541	2.41E+07	-240884.	-0.00310	17475.	1.20E+12
-2007.	38353.	0.00				
58.0720	0.08038	2.37E+07	-244112.	-0.00307	17188.	1.20E+12
-1949.	39568.	0.00				
58.2080	0.07540	2.33E+07	-247243.	-0.00303	16897.	1.20E+12
-1888.	40873.	0.00				
58.3440	0.07047	2.29E+07	-250273.	-0.00300	16603.	1.20E+12

-1826.	42279.	0.00				
58.4800	0.06560	2.25E+07	-253200.	-0.00297	16305.	1.20E+12
-1761.	43803.	0.00				
58.6160	0.06077	2.21E+07	-256018.	-0.00294	16003.	1.20E+12
-1693.	45465.	0.00				
58.7520	0.05600	2.16E+07	-258724.	-0.00291	15699.	1.20E+12
-1623.	47289.	0.00				
58.8880	0.05127	2.12E+07	-261312.	-0.00288	15391.	1.20E+12
-1549.	49308.	0.00				
59.0240	0.04659	2.08E+07	-263777.	-0.00285	15080.	1.20E+12
-1472.	51564.	0.00				
59.1600	0.04196	2.04E+07	-266114.	-0.00283	14766.	1.20E+12
-1391.	54113.	0.00				
59.2960	0.03737	1.99E+07	-268290.	-0.00280	14450.	1.20E+12
-1276.	55740.	0.00				
59.4320	0.03282	1.95E+07	-270249.	-0.00277	14131.	1.20E+12
-1124.	55868.	0.00				
59.5680	0.02832	1.90E+07	-271959.	-0.00275	13810.	1.20E+12
-971.784	55996.	0.00				
59.7040	0.02386	1.86E+07	-273421.	-0.00272	13487.	1.20E+12
-820.656	56124.	0.00				
59.8400	0.01945	1.81E+07	-274638.	-0.00269	13163.	1.20E+12
-670.252	56252.	0.00				
59.9760	0.01507	1.77E+07	-275609.	-0.00267	12837.	1.20E+12
-520.548	56379.	0.00				
60.1120	0.01073	1.72E+07	-276337.	-0.00265	12510.	1.20E+12
-371.519	56507.	0.00				
60.2480	0.00643	1.68E+07	-276823.	-0.00262	12183.	1.20E+12
-223.139	56635.	0.00				
60.3840	0.00217	1.63E+07	-277066.	-0.00260	11855.	1.20E+12
-75.382	56763.	0.00				
60.5200	-0.00206	1.59E+07	-277069.	-0.00258	11527.	1.20E+12
71.7769	56891.	0.00				
60.6560	-0.00625	1.54E+07	-276832.	-0.00256	11199.	1.20E+12
218.3654	57019.	0.00				
60.7920	-0.01041	1.50E+07	-276357.	-0.00254	10872.	1.20E+12
364.4100	57146.	0.00				
60.9280	-0.01453	1.45E+07	-275643.	-0.00252	10545.	1.20E+12
509.9380	57274.	0.00				
61.0640	-0.01862	1.41E+07	-274693.	-0.00250	10219.	1.20E+12
654.9765	57402.	0.00				
61.2000	-0.02268	1.36E+07	-273506.	-0.00248	9895.	1.20E+12
799.5533	57530.	0.00				
61.3360	-0.02671	1.32E+07	-272083.	-0.00246	9572.	1.20E+12
943.6960	57658.	0.00				
61.4720	-0.03071	1.28E+07	-270426.	-0.00244	9251.	1.20E+12
1087.	57786.	0.00				
61.6080	-0.03468	1.23E+07	-268534.	-0.00243	8932.	1.20E+12
1231.	57913.	0.00				
61.7440	-0.03863	1.19E+07	-266409.	-0.00241	8615.	1.20E+12

1374.	58041.	0.00					
61.8800	-0.04255	1.14E+07	-264051.	-0.00239	8301.	1.20E+12	
1516.	58169.	0.00					
62.0160	-0.04644	1.10E+07	-261459.	-0.00238	7990.	1.20E+12	
1659.	58297.	0.00					
62.1520	-0.05031	1.06E+07	-258636.	-0.00236	7682.	1.20E+12	
1801.	58425.	0.00					
62.2880	-0.05415	1.02E+07	-255613.	-0.00235	7377.	1.20E+12	
1904.	57378.	0.00					
62.4240	-0.05798	9757159.	-252429.	-0.00234	7077.	1.20E+12	
1998.	56235.	0.00					
62.5600	-0.06178	9347855.	-249094.	-0.00232	6780.	1.20E+12	
2090.	55216.	0.00					
62.6960	-0.06556	8944118.	-245608.	-0.00231	6487.	1.20E+12	
2181.	54302.	0.00					
62.8320	-0.06932	8546190.	-241975.	-0.00230	6198.	1.20E+12	
2271.	53477.	0.00					
62.9680	-0.07306	8154312.	-238195.	-0.00229	5914.	1.20E+12	
2360.	52730.	0.00					
63.1040	-0.07678	7768720.	-234271.	-0.00228	5635.	1.20E+12	
2449.	52050.	0.00					
63.2400	-0.08049	7389651.	-230203.	-0.00227	5360.	1.20E+12	
2536.	51430.	0.00					
63.3760	-0.08418	7017338.	-225993.	-0.00226	5090.	1.20E+12	
2623.	50863.	0.00					
63.5120	-0.08785	6652011.	-221641.	-0.00225	4825.	1.20E+12	
2710.	50342.	0.00					
63.6480	-0.09151	6293902.	-217148.	-0.00224	4565.	1.20E+12	
2796.	49862.	0.00					
63.7840	-0.09515	5943240.	-212515.	-0.00223	4311.	1.20E+12	
2881.	49421.	0.00					
63.9200	-0.09878	5600252.	-207743.	-0.00222	4062.	1.20E+12	
2967.	49012.	0.00					
64.0560	-0.102	5265165.	-202832.	-0.00221	3819.	1.20E+12	
3052.	48635.	0.00					
64.1920	-0.106	4938207.	-197783.	-0.00221	3582.	1.20E+12	
3136.	48285.	0.00					
64.3280	-0.110	4619603.	-192595.	-0.00220	3351.	1.20E+12	
3221.	47960.	0.00					
64.4640	-0.113	4309577.	-187269.	-0.00219	3126.	1.20E+12	
3306.	47658.	0.00					
64.6000	-0.117	4008356.	-181806.	-0.00219	2907.	1.20E+12	
3390.	47378.	0.00					
64.7360	-0.120	3716164.	-176204.	-0.00218	2695.	1.20E+12	
3474.	47117.	0.00					
64.8720	-0.124	3433225.	-170466.	-0.00218	2490.	1.20E+12	
3559.	46873.	0.00					
65.0080	-0.127	3159764.	-164589.	-0.00217	2292.	1.20E+12	
3643.	46647.	0.00					
65.1440	-0.131	2896005.	-158575.	-0.00217	2100.	1.20E+12	

3727.	46435.	0.00					
65.2800	-0.135	2642174.	-152423.	-0.00217	1916.	1.20E+12	
3812.	46238.	0.00					
65.4160	-0.138	2398496.	-146134.	-0.00216	1740.	1.20E+12	
3896.	46054.	0.00					
65.5520	-0.142	2165194.	-139706.	-0.00216	1570.	1.20E+12	
3981.	45883.	0.00					
65.6880	-0.145	1942495.	-133140.	-0.00216	1409.	1.20E+12	
4066.	45723.	0.00					
65.8240	-0.149	1730625.	-126435.	-0.00215	1255.	1.20E+12	
4151.	45573.	0.00					
65.9600	-0.152	1529810.	-119592.	-0.00215	1110.	1.20E+12	
4236.	45434.	0.00					
66.0960	-0.156	1340277.	-112609.	-0.00215	972.0852	1.20E+12	
4321.	45304.	0.00					
66.2320	-0.159	1162253.	-105487.	-0.00215	842.9667	1.20E+12	
4407.	45183.	0.00					
66.3680	-0.163	995966.	-98226.	-0.00215	722.3609	1.20E+12	
4493.	45071.	0.00					
66.5040	-0.166	841645.	-90823.	-0.00215	610.4338	1.20E+12	
4579.	44966.	0.00					
66.6400	-0.170	699519.	-83280.	-0.00215	507.3516	1.20E+12	
4665.	44869.	0.00					
66.7760	-0.173	569818.	-75596.	-0.00214	413.2812	1.20E+12	
4752.	44779.	0.00					
66.9120	-0.177	452772.	-67770.	-0.00214	328.3899	1.20E+12	
4839.	44695.	0.00					
67.0480	-0.180	348615.	-59802.	-0.00214	252.8458	1.20E+12	
4926.	44618.	0.00					
67.1840	-0.184	257577.	-51692.	-0.00214	186.8174	1.20E+12	
5014.	44547.	0.00					
67.3200	-0.187	179893.	-43438.	-0.00214	130.4740	1.20E+12	
5102.	44482.	0.00					
67.4560	-0.191	115796.	-35040.	-0.00214	83.9854	1.20E+12	
5190.	44422.	0.00					
67.5920	-0.194	65522.	-26498.	-0.00214	47.5222	1.20E+12	
5278.	44367.	0.00					
67.7280	-0.198	29306.	-17811.	-0.00214	21.2555	1.20E+12	
5367.	44317.	0.00					
67.8640	-0.201	7386.	-8979.	-0.00214	5.3572	1.20E+12	
5457.	44272.	0.00					
68.0000	-0.205	0.00	0.00	-0.00214	0.00	1.20E+12	
5546.	22116.	0.00					

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          =      5.23326814 inches
Computed slope at pile head   =     -0.0075947 radians
Maximum bending moment        =      34783660. inch-lbs
Maximum shear force           =      -277069. lbs
Depth of maximum bending moment =    51.13600000 feet below pile head
Depth of maximum shear force   =    60.52000000 feet below pile head
Number of iterations          =                27
Number of zero deflection points =              1
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
No.		1	2	lbs	inches	radians	
1	V, lb	0.00	M, in-lb	0.00	5.2333	-0.00759	
		-277069.	3.48E+07				

```

Maximum pile-head deflection = 5.2332681356 inches
Maximum pile-head rotation   = -0.0075946697 radians = -0.435143 deg.
  
```

The analysis ended normally.

=====

LPIle for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 48ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 48ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 48ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 48ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:32:57

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	45.00000	4.00000
3	48.00000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	---
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
----	-----	-----
1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	5.3477	-0.02520	-1.23E-04	-0.00671	1.83E-05	1.20E+12	
-252.884	153.1200	0.00					
0.1360	5.3367	-336.807	-414.345	-0.00671	0.2443	1.20E+12	
-254.887	311.1934	0.00					
0.2720	5.3258	-1352.	-831.940	-0.00671	0.9809	1.20E+12	
-256.876	316.2109	0.00					
0.4080	5.3148	-3052.	-1253.	-0.00671	2.2138	1.20E+12	
-258.849	321.2937	0.00					
0.5440	5.3039	-5441.	-1677.	-0.00671	3.9466	1.20E+12	

-260.808	326.4433	0.00				
0.6800	5.2929	-8525.	-2104.	-0.00671	6.1833	1.20E+12
-262.752	331.6611	0.00				
0.8160	5.2820	-12309.	-2534.	-0.00671	8.9276	1.20E+12
-264.681	336.9485	0.00				
0.9520	5.2710	-16798.	-2968.	-0.00671	12.1832	1.20E+12
-266.594	342.3071	0.00				
1.0880	5.2601	-21996.	-3405.	-0.00671	15.9537	1.20E+12
-268.491	347.7383	0.00				
1.2240	5.2491	-27910.	-3844.	-0.00671	20.2429	1.20E+12
-270.372	353.2440	0.00				
1.3600	5.2382	-34544.	-4287.	-0.00671	25.0544	1.20E+12
-272.237	358.8256	0.00				
1.4960	5.2272	-41903.	-4733.	-0.00671	30.3918	1.20E+12
-274.086	364.4849	0.00				
1.6320	5.2163	-49992.	-5182.	-0.00671	36.2587	1.20E+12
-275.917	370.2237	0.00				
1.7680	5.2053	-58816.	-5633.	-0.00671	42.6585	1.20E+12
-277.732	376.0439	0.00				
1.9040	5.1944	-68380.	-6088.	-0.00671	49.5949	1.20E+12
-279.530	381.9472	0.00				
2.0400	5.1834	-78688.	-6546.	-0.00671	57.0712	1.20E+12
-281.310	387.9358	0.00				
2.1760	5.1725	-89745.	-7006.	-0.00671	65.0910	1.20E+12
-283.073	394.0115	0.00				
2.3120	5.1615	-101557.	-7470.	-0.00671	73.6576	1.20E+12
-284.817	400.1765	0.00				
2.4480	5.1506	-114126.	-7936.	-0.00671	82.7744	1.20E+12
-286.543	406.4329	0.00				
2.5840	5.1396	-127460.	-8405.	-0.00671	92.4447	1.20E+12
-288.251	412.7830	0.00				
2.7200	5.1287	-141560.	-8877.	-0.00671	102.6719	1.20E+12
-289.939	419.2292	0.00				
2.8560	5.1177	-156433.	-9351.	-0.00671	113.4591	1.20E+12
-291.609	425.7737	0.00				
2.9920	5.1068	-172083.	-9829.	-0.00671	124.8096	1.20E+12
-293.259	432.4191	0.00				
3.1280	5.0958	-188514.	-10309.	-0.00671	136.7267	1.20E+12
-294.889	439.1680	0.00				
3.2640	5.0849	-205730.	-10791.	-0.00671	149.2134	1.20E+12
-296.499	446.0230	0.00				
3.4000	5.0739	-223736.	-11276.	-0.00671	162.2728	1.20E+12
-298.088	452.9869	0.00				
3.5360	5.0630	-242536.	-11764.	-0.00671	175.9081	1.20E+12
-299.657	460.0626	0.00				
3.6720	5.0520	-262134.	-12254.	-0.00671	190.1223	1.20E+12
-301.205	467.2530	0.00				
3.8080	5.0411	-282534.	-12747.	-0.00671	204.9183	1.20E+12
-302.731	474.5614	0.00				
3.9440	5.0301	-303741.	-13242.	-0.00671	220.2991	1.20E+12

-304.235	481.9908	0.00				
4.0800	5.0192	-325757.	-13740.	-0.00671	236.2676	1.20E+12
-305.717	489.5446	0.00				
4.2160	5.0082	-348588.	-14240.	-0.00671	252.8266	1.20E+12
-307.176	497.2263	0.00				
4.3520	4.9973	-372238.	-14743.	-0.00671	269.9791	1.20E+12
-308.613	505.0396	0.00				
4.4880	4.9863	-396709.	-15248.	-0.00671	287.7277	1.20E+12
-310.026	512.9881	0.00				
4.6240	4.9753	-422006.	-15755.	-0.00671	306.0752	1.20E+12
-311.415	521.0759	0.00				
4.7600	4.9644	-448132.	-16264.	-0.00672	325.0243	1.20E+12
-312.780	529.3069	0.00				
4.8960	4.9534	-475092.	-16776.	-0.00672	344.5776	1.20E+12
-314.120	537.6855	0.00				
5.0320	4.9425	-502888.	-17289.	-0.00672	364.7377	1.20E+12
-315.435	546.2160	0.00				
5.1680	4.9315	-531524.	-17805.	-0.00672	385.5072	1.20E+12
-316.725	554.9032	0.00				
5.3040	4.9205	-561003.	-18323.	-0.00672	406.8884	1.20E+12
-317.988	563.7517	0.00				
5.4400	4.9096	-591330.	-18843.	-0.00672	428.8840	1.20E+12
-319.225	572.7668	0.00				
5.5760	4.8986	-622507.	-19365.	-0.00672	451.4962	1.20E+12
-320.435	581.9535	0.00				
5.7120	4.8876	-654537.	-19889.	-0.00672	474.7274	1.20E+12
-321.617	591.3175	0.00				
5.8480	4.8767	-687424.	-20415.	-0.00672	498.5799	1.20E+12
-322.772	600.8645	0.00				
5.9840	4.8657	-721171.	-20942.	-0.00672	523.0559	1.20E+12
-323.897	610.6004	0.00				
6.1200	4.8547	-755780.	-21472.	-0.00672	548.1576	1.20E+12
-324.994	620.5317	0.00				
6.2560	4.8438	-791255.	-22003.	-0.00672	573.8870	1.20E+12
-326.060	630.6649	0.00				
6.3920	4.8328	-827599.	-22536.	-0.00673	600.2464	1.20E+12
-327.097	641.0070	0.00				
6.5280	4.8218	-864813.	-23071.	-0.00673	627.2376	1.20E+12
-328.102	651.5652	0.00				
6.6640	4.8108	-902902.	-23607.	-0.00673	654.8627	1.20E+12
-329.075	662.3471	0.00				
6.8000	4.7998	-941867.	-24145.	-0.00673	683.1234	1.20E+12
-330.017	673.3607	0.00				
6.9360	4.7889	-981710.	-24684.	-0.00673	712.0216	1.20E+12
-330.925	684.6146	0.00				
7.0720	4.7779	-1022436.	-25225.	-0.00673	741.5591	1.20E+12
-331.800	696.1175	0.00				
7.2080	4.7669	-1064045.	-25767.	-0.00673	771.7376	1.20E+12
-332.640	707.8787	0.00				
7.3440	4.7559	-1106540.	-26311.	-0.00673	802.5586	1.20E+12

-333.445	719.9081	0.00				
7.4800	4.7449	-1149923.	-26855.	-0.00674	834.0238	1.20E+12
-334.214	732.2160	0.00				
7.6160	4.7339	-1194196.	-27402.	-0.00674	866.1345	1.20E+12
-334.946	744.8135	0.00				
7.7520	4.7229	-1239361.	-27949.	-0.00674	898.8923	1.20E+12
-335.640	757.7119	0.00				
7.8880	4.7119	-1285420.	-28497.	-0.00674	932.2985	1.20E+12
-336.297	770.9235	0.00				
8.0240	4.7009	-1332375.	-29046.	-0.00674	966.3543	1.20E+12
-336.913	784.4612	0.00				
8.1600	4.6899	-1380228.	-29597.	-0.00674	1001.	1.20E+12
-337.489	798.3386	0.00				
8.2960	4.6789	-1428979.	-30148.	-0.00675	1036.	1.20E+12
-338.024	812.5703	0.00				
8.4320	4.6679	-1478630.	-30700.	-0.00675	1072.	1.20E+12
-338.517	827.1715	0.00				
8.5680	4.6569	-1529183.	-31253.	-0.00675	1109.	1.20E+12
-338.966	842.1586	0.00				
8.7040	4.6459	-1580639.	-31806.	-0.00675	1146.	1.20E+12
-339.371	857.5489	0.00				
8.8400	4.6348	-1632999.	-32360.	-0.00676	1184.	1.20E+12
-339.730	873.3607	0.00				
8.9760	4.6238	-1686264.	-32915.	-0.00676	1223.	1.20E+12
-340.041	889.6138	0.00				
9.1120	4.6128	-1740434.	-33470.	-0.00676	1262.	1.20E+12
-340.305	906.3290	0.00				
9.2480	4.6017	-1795511.	-34026.	-0.00676	1302.	1.20E+12
-340.520	923.5287	0.00				
9.3840	4.5907	-1851494.	-34582.	-0.00676	1343.	1.20E+12
-340.683	941.2367	0.00				
9.5200	4.5797	-1908386.	-35138.	-0.00677	1384.	1.20E+12
-340.794	959.4787	0.00				
9.6560	4.5686	-1966184.	-35694.	-0.00677	1426.	1.20E+12
-340.852	978.2819	0.00				
9.7920	4.5576	-2024891.	-36250.	-0.00677	1469.	1.20E+12
-340.853	997.6758	0.00				
9.9280	4.5465	-2084505.	-36807.	-0.00678	1512.	1.20E+12
-340.798	1018.	0.00				
10.0640	4.5355	-2145027.	-37363.	-0.00678	1556.	1.20E+12
-340.684	1038.	0.00				
10.2000	4.5244	-2206457.	-37918.	-0.00678	1600.	1.20E+12
-340.510	1060.	0.00				
10.3360	4.5133	-2268793.	-38474.	-0.00678	1646.	1.20E+12
-340.272	1082.	0.00				
10.4720	4.5022	-2332036.	-39029.	-0.00679	1691.	1.20E+12
-339.970	1105.	0.00				
10.6080	4.4912	-2396184.	-39584.	-0.00679	1738.	1.20E+12
-339.602	1128.	0.00				
10.7440	4.4801	-2461237.	-40137.	-0.00679	1785.	1.20E+12

-339.164	1153.	0.00				
10.8800	4.4690	-2527193.	-40691.	-0.00680	1833.	1.20E+12
-338.654	1178.	0.00				
11.0160	4.4579	-2594051.	-41243.	-0.00680	1881.	1.20E+12
-338.071	1205.	0.00				
11.1520	4.4468	-2661809.	-41794.	-0.00680	1931.	1.20E+12
-337.411	1232.	0.00				
11.2880	4.4357	-2730466.	-42344.	-0.00681	1980.	1.20E+12
-336.671	1261.	0.00				
11.4240	4.4246	-2800020.	-42893.	-0.00681	2031.	1.20E+12
-335.848	1291.	0.00				
11.5600	4.4135	-2870468.	-43440.	-0.00682	2082.	1.20E+12
-334.939	1322.	0.00				
11.6960	4.4023	-2941808.	-43986.	-0.00682	2134.	1.20E+12
-333.940	1355.	0.00				
11.8320	4.3912	-3014038.	-44530.	-0.00682	2186.	1.20E+12
-332.848	1389.	0.00				
11.9680	4.3801	-3087154.	-45072.	-0.00683	2239.	1.20E+12
-331.659	1424.	0.00				
12.1040	4.3689	-3161154.	-45613.	-0.00683	2293.	1.20E+12
-330.367	1461.	0.00				
12.2400	4.3578	-3236034.	-46151.	-0.00684	2347.	1.20E+12
-328.970	1501.	0.00				
12.3760	4.3466	-3311789.	-46686.	-0.00684	2402.	1.20E+12
-327.460	1542.	0.00				
12.5120	4.3354	-3388417.	-47219.	-0.00685	2458.	1.20E+12
-325.834	1585.	0.00				
12.6480	4.3243	-3465913.	-47750.	-0.00685	2514.	1.20E+12
-324.084	1631.	0.00				
12.7840	4.3131	-3544272.	-48277.	-0.00685	2571.	1.20E+12
-322.205	1680.	0.00				
12.9200	4.3019	-3623489.	-48801.	-0.00686	2628.	1.20E+12
-320.189	1731.	0.00				
13.0560	4.2907	-3703559.	-49322.	-0.00686	2686.	1.20E+12
-318.028	1786.	0.00				
13.1920	4.2795	-3784476.	-49839.	-0.00687	2745.	1.20E+12
-315.715	1844.	0.00				
13.3280	4.2683	-3866234.	-50352.	-0.00687	2804.	1.20E+12
-313.238	1906.	0.00				
13.4640	4.2570	-3948826.	-50861.	-0.00688	2864.	1.20E+12
-310.589	1972.	0.00				
13.6000	4.2458	-4032245.	-51366.	-0.00689	2925.	1.20E+12
-307.754	2043.	0.00				
13.7360	4.2346	-4116484.	-51866.	-0.00689	2986.	1.20E+12
-304.722	2120.	0.00				
13.8720	4.2233	-4201535.	-52360.	-0.00690	3047.	1.20E+12
-301.477	2203.	0.00				
14.0080	4.2121	-4287388.	-52850.	-0.00690	3110.	1.20E+12
-298.002	2293.	0.00				
14.1440	4.2008	-4374035.	-53333.	-0.00691	3172.	1.20E+12

-294.278	2392.	0.00				
14.2800	4.1895	-4461467.	-53810.	-0.00691	3236.	1.20E+12
-290.283	2500.	0.00				
14.4160	4.1782	-4549671.	-54280.	-0.00692	3300.	1.20E+12
-285.991	2619.	0.00				
14.5520	4.1669	-4638637.	-54743.	-0.00693	3364.	1.20E+12
-281.374	2751.	0.00				
14.6880	4.1556	-4728352.	-55198.	-0.00693	3429.	1.20E+12
-276.395	2899.	0.00				
14.8240	4.1443	-4818803.	-55645.	-0.00694	3495.	1.20E+12
-271.012	3065.	0.00				
14.9600	4.1330	-4909977.	-56082.	-0.00695	3561.	1.20E+12
-265.174	3255.	0.00				
15.0960	4.1216	-5001856.	-56510.	-0.00695	3628.	1.20E+12
-258.819	3473.	0.00				
15.2320	4.1103	-5094425.	-56927.	-0.00696	3695.	1.20E+12
-251.868	3728.	0.00				
15.3680	4.0989	-5187665.	-57331.	-0.00697	3763.	1.20E+12
-244.219	4030.	0.00				
15.5040	4.0875	-5281555.	-57723.	-0.00697	3831.	1.20E+12
-235.741	4396.	0.00				
15.6400	4.0761	-5376073.	-58100.	-0.00698	3899.	1.20E+12
-226.251	4850.	0.00				
15.7760	4.0647	-5471194.	-58461.	-0.00699	3968.	1.20E+12
-215.494	5433.	0.00				
15.9120	4.0533	-5566889.	-58802.	-0.00700	4038.	1.20E+12
-203.086	6216.	0.00				
16.0480	4.0419	-5663124.	-59122.	-0.00700	4107.	1.20E+12
-188.402	7339.	0.00				
16.1840	4.0305	-5759862.	-59414.	-0.00701	4178.	1.20E+12
-170.312	9125.	0.00				
16.3200	4.0190	-5857053.	-59673.	-0.00702	4248.	1.20E+12
-146.323	12562.	0.00				
16.4560	4.0075	-5954633.	-59880.	-0.00703	4319.	1.20E+12
-108.138	23381.	0.00				
16.5920	3.9961	-6052502.	-59897.	-0.00704	4390.	1.20E+12
87.3299	36288.	0.00				
16.7280	3.9846	-6150138.	-59713.	-0.00704	4461.	1.20E+12
138.5571	14668.	0.00				
16.8640	3.9731	-6247405.	-59463.	-0.00705	4531.	1.20E+12
167.7290	10169.	0.00				
17.0000	3.9616	-6344225.	-59171.	-0.00706	4601.	1.20E+12
189.8554	8061.	0.00				
17.1360	3.9500	-6440540.	-58846.	-0.00707	4671.	1.20E+12
208.2788	6803.	0.00				
17.2720	3.9385	-6536300.	-58493.	-0.00708	4741.	1.20E+12
224.3714	5953.	0.00				
17.4080	3.9269	-6631462.	-58115.	-0.00709	4810.	1.20E+12
238.8453	5335.	0.00				
17.5440	3.9154	-6725989.	-57715.	-0.00710	4878.	1.20E+12

252.1232	4861.	0.00				
17.6800	3.9038	-6819843.	-57293.	-0.00711	4946.	1.20E+12
264.4784	4485.	0.00				
17.8160	3.8922	-6912994.	-56852.	-0.00712	5014.	1.20E+12
276.0986	4178.	0.00				
17.9520	3.8805	-7005408.	-56392.	-0.00712	5081.	1.20E+12
287.1192	3923.	0.00				
18.0880	3.8689	-7097059.	-55915.	-0.00713	5147.	1.20E+12
297.6411	3705.	0.00				
18.2240	3.8573	-7187916.	-55421.	-0.00714	5213.	1.20E+12
307.7417	3518.	0.00				
18.3600	3.8456	-7277954.	-54911.	-0.00715	5279.	1.20E+12
317.4819	3356.	0.00				
18.4960	3.8339	-7367146.	-54385.	-0.00716	5343.	1.20E+12
326.9104	3212.	0.00				
18.6320	3.8222	-7455468.	-53844.	-0.00717	5407.	1.20E+12
336.0669	3085.	0.00				
18.7680	3.8105	-7542894.	-53289.	-0.00718	5471.	1.20E+12
344.9843	2971.	0.00				
18.9040	3.7988	-7629402.	-52718.	-0.00719	5534.	1.20E+12
353.6899	2868.	0.00				
19.0400	3.7870	-7714967.	-52134.	-0.00720	5596.	1.20E+12
362.2071	2775.	0.00				
19.1760	3.7752	-7799568.	-51536.	-0.00722	5657.	1.20E+12
370.5555	2691.	0.00				
19.3120	3.7635	-7883182.	-50925.	-0.00723	5718.	1.20E+12
378.7523	2613.	0.00				
19.4480	3.7517	-7965787.	-50300.	-0.00724	5777.	1.20E+12
386.8122	2542.	0.00				
19.5840	3.7398	-8047362.	-49662.	-0.00725	5837.	1.20E+12
394.7481	2476.	0.00				
19.7200	3.7280	-8127885.	-49012.	-0.00726	5895.	1.20E+12
402.5715	2415.	0.00				
19.8560	3.7161	-8207337.	-48349.	-0.00727	5953.	1.20E+12
410.2922	2359.	0.00				
19.9920	3.7043	-8285695.	-47673.	-0.00728	6010.	1.20E+12
417.9193	2306.	0.00				
20.1280	3.6924	-8362940.	-46985.	-0.00729	6066.	1.20E+12
425.4606	2257.	0.00				
20.2640	3.6805	-8439053.	-46284.	-0.00730	6121.	1.20E+12
432.9234	2211.	0.00				
20.4000	3.6685	-8514012.	-45572.	-0.00732	6175.	1.20E+12
440.3140	2168.	0.00				
20.5360	3.6566	-8587798.	-44847.	-0.00733	6229.	1.20E+12
447.6382	2127.	0.00				
20.6720	3.6446	-8660392.	-44111.	-0.00734	6281.	1.20E+12
454.9013	2089.	0.00				
20.8080	3.6326	-8731775.	-43362.	-0.00735	6333.	1.20E+12
462.1081	2053.	0.00				
20.9440	3.6206	-8801927.	-42602.	-0.00736	6384.	1.20E+12

469.2630	2019.	0.00				
21.0800	3.6086	-8870829.	-41831.	-0.00737	6434.	1.20E+12
476.3698	1986.	0.00				
21.2160	3.5966	-8938462.	-41047.	-0.00739	6483.	1.20E+12
483.4323	1956.	0.00				
21.3520	3.5845	-9004807.	-40253.	-0.00740	6531.	1.20E+12
490.4539	1926.	0.00				
21.4880	3.5724	-9069847.	-39447.	-0.00741	6578.	1.20E+12
497.4376	1899.	0.00				
21.6240	3.5603	-9133561.	-38629.	-0.00742	6624.	1.20E+12
504.3864	1872.	0.00				
21.7600	3.5482	-9195932.	-37800.	-0.00744	6670.	1.20E+12
511.3028	1847.	0.00				
21.8960	3.5360	-9256941.	-36960.	-0.00745	6714.	1.20E+12
518.1894	1823.	0.00				
22.0320	3.5239	-9316570.	-36109.	-0.00746	6757.	1.20E+12
525.0484	1800.	0.00				
22.1680	3.5117	-9374801.	-35246.	-0.00747	6799.	1.20E+12
531.8820	1778.	0.00				
22.3040	3.4995	-9431615.	-34373.	-0.00749	6841.	1.20E+12
538.6921	1756.	0.00				
22.4400	3.4873	-9486994.	-33488.	-0.00750	6881.	1.20E+12
545.4806	1736.	0.00				
22.5760	3.4750	-9540920.	-32592.	-0.00751	6920.	1.20E+12
552.2492	1717.	0.00				
22.7120	3.4627	-9593376.	-31686.	-0.00753	6958.	1.20E+12
558.9996	1698.	0.00				
22.8480	3.4504	-9644342.	-30768.	-0.00754	6995.	1.20E+12
565.7333	1680.	0.00				
22.9840	3.4381	-9693802.	-29839.	-0.00755	7031.	1.20E+12
572.4517	1663.	0.00				
23.1200	3.4258	-9741737.	-28899.	-0.00756	7066.	1.20E+12
579.1561	1646.	0.00				
23.2560	3.4134	-9788130.	-27949.	-0.00758	7099.	1.20E+12
585.8479	1630.	0.00				
23.3920	3.4011	-9832962.	-26987.	-0.00759	7132.	1.20E+12
592.5282	1615.	0.00				
23.5280	3.3887	-9876216.	-26015.	-0.00760	7163.	1.20E+12
599.1982	1600.	0.00				
23.6640	3.3762	-9917875.	-25031.	-0.00762	7193.	1.20E+12
605.8589	1585.	0.00				
23.8000	3.3638	-9957919.	-24037.	-0.00763	7222.	1.20E+12
612.5114	1571.	0.00				
23.9360	3.3513	-9996332.	-23032.	-0.00765	7250.	1.20E+12
619.1565	1558.	0.00				
24.0720	3.3388	-1.00E+07	-22016.	-0.00766	7277.	1.20E+12
625.7953	1545.	0.00				
24.2080	3.3263	-1.01E+07	-20990.	-0.00767	7302.	1.20E+12
632.4285	1532.	0.00				
24.3440	3.3138	-1.01E+07	-19952.	-0.00769	7327.	1.20E+12

639.0569	1520.	0.00				
24.4800	3.3012	-1.01E+07	-18904.	-0.00770	7350.	1.20E+12
645.6814	1508.	0.00				
24.6160	3.2887	-1.02E+07	-17845.	-0.00771	7371.	1.20E+12
652.3027	1497.	0.00				
24.7520	3.2761	-1.02E+07	-16775.	-0.00773	7392.	1.20E+12
658.9214	1485.	0.00				
24.8880	3.2634	-1.02E+07	-15694.	-0.00774	7411.	1.20E+12
665.5383	1475.	0.00				
25.0240	3.2508	-1.02E+07	-14602.	-0.00776	7429.	1.20E+12
672.1540	1464.	0.00				
25.1600	3.2381	-1.03E+07	-13500.	-0.00777	7446.	1.20E+12
678.7690	1454.	0.00				
25.2960	3.2254	-1.03E+07	-12387.	-0.00778	7461.	1.20E+12
685.3840	1444.	0.00				
25.4320	3.2127	-1.03E+07	-11263.	-0.00780	7475.	1.20E+12
691.9995	1434.	0.00				
25.5680	3.2000	-1.03E+07	-10128.	-0.00781	7488.	1.20E+12
698.6161	1425.	0.00				
25.7040	3.1872	-1.03E+07	-8983.	-0.00783	7499.	1.20E+12
705.2342	1416.	0.00				
25.8400	3.1744	-1.04E+07	-7826.	-0.00784	7509.	1.20E+12
711.8542	1407.	0.00				
25.9760	3.1616	-1.04E+07	-6659.	-0.00785	7517.	1.20E+12
718.4768	1399.	0.00				
26.1120	3.1488	-1.04E+07	-5481.	-0.00787	7525.	1.20E+12
725.1023	1390.	0.00				
26.2480	3.1359	-1.04E+07	-4292.	-0.00788	7530.	1.20E+12
731.7311	1382.	0.00				
26.3840	3.1231	-1.04E+07	-3093.	-0.00790	7535.	1.20E+12
738.3636	1374.	0.00				
26.5200	3.1102	-1.04E+07	-1882.	-0.00791	7538.	1.20E+12
745.0003	1366.	0.00				
26.6560	3.0973	-1.04E+07	-661.090	-0.00792	7539.	1.20E+12
751.6415	1359.	0.00				
26.7920	3.0843	-1.04E+07	571.0125	-0.00794	7539.	1.20E+12
758.2875	1351.	0.00				
26.9280	3.0713	-1.04E+07	1814.	-0.00795	7538.	1.20E+12
764.9387	1344.	0.00				
27.0640	3.0584	-1.04E+07	3068.	-0.00797	7535.	1.20E+12
771.5954	1337.	0.00				
27.2000	3.0453	-1.04E+07	4332.	-0.00798	7531.	1.20E+12
778.2579	1330.	0.00				
27.3360	3.0323	-1.04E+07	5608.	-0.00800	7525.	1.20E+12
784.9265	1324.	0.00				
27.4720	3.0192	-1.04E+07	6894.	-0.00801	7517.	1.20E+12
791.6016	1317.	0.00				
27.6080	3.0062	-1.04E+07	8192.	-0.00802	7508.	1.20E+12
798.2833	1311.	0.00				
27.7440	2.9931	-1.03E+07	9500.	-0.00804	7498.	1.20E+12

804.9720	1305.	0.00				
27.8800	2.9799	-1.03E+07	10819.	-0.00805	7486.	1.20E+12
811.6679	1299.	0.00				
28.0160	2.9668	-1.03E+07	12149.	-0.00807	7472.	1.20E+12
818.3713	1293.	0.00				
28.1520	2.9536	-1.03E+07	13490.	-0.00808	7457.	1.20E+12
825.0823	1287.	0.00				
28.2880	2.9404	-1.03E+07	14842.	-0.00809	7440.	1.20E+12
831.8013	1281.	0.00				
28.4240	2.9272	-1.02E+07	16205.	-0.00811	7422.	1.20E+12
838.5283	1276.	0.00				
28.5600	2.9139	-1.02E+07	17579.	-0.00812	7402.	1.20E+12
845.2638	1270.	0.00				
28.6960	2.9007	-1.02E+07	18964.	-0.00814	7380.	1.20E+12
852.0077	1265.	0.00				
28.8320	2.8874	-1.01E+07	20360.	-0.00815	7357.	1.20E+12
858.7604	1260.	0.00				
28.9680	2.8741	-1.01E+07	21767.	-0.00816	7332.	1.20E+12
865.5220	1255.	0.00				
29.1040	2.8607	-1.01E+07	23185.	-0.00818	7306.	1.20E+12
872.2927	1250.	0.00				
29.2400	2.8474	-1.00E+07	24615.	-0.00819	7277.	1.20E+12
879.0727	1245.	0.00				
29.3760	2.8340	-9992371.	26055.	-0.00820	7247.	1.20E+12
885.8621	1240.	0.00				
29.5120	2.8206	-9948670.	27506.	-0.00822	7216.	1.20E+12
892.6611	1235.	0.00				
29.6480	2.8072	-9902591.	28968.	-0.00823	7182.	1.20E+12
899.4698	1231.	0.00				
29.7840	2.7937	-9854117.	30442.	-0.00824	7147.	1.20E+12
906.2884	1226.	0.00				
29.9200	2.7803	-9803229.	31927.	-0.00826	7110.	1.20E+12
913.1170	1222.	0.00				
30.0560	2.7668	-9749909.	33422.	-0.00827	7071.	1.20E+12
919.9558	1217.	0.00				
30.1920	2.7533	-9694138.	34929.	-0.00828	7031.	1.20E+12
926.8048	1213.	0.00				
30.3280	2.7398	-9635900.	36447.	-0.00830	6989.	1.20E+12
933.6643	1209.	0.00				
30.4640	2.7262	-9575174.	37977.	-0.00831	6945.	1.20E+12
940.5342	1205.	0.00				
30.6000	2.7126	-9511944.	39517.	-0.00832	6899.	1.20E+12
947.4148	1201.	0.00				
30.7360	2.6990	-9446190.	41069.	-0.00834	6851.	1.20E+12
954.3062	1197.	0.00				
30.8720	2.6854	-9377894.	42632.	-0.00835	6802.	1.20E+12
961.2083	1193.	0.00				
31.0080	2.6718	-9307038.	44207.	-0.00836	6750.	1.20E+12
968.1214	1190.	0.00				
31.1440	2.6581	-9233604.	45792.	-0.00837	6697.	1.20E+12

975.0456	1186.	0.00				
31.2800	2.6444	-9157573.	47389.	-0.00839	6642.	1.20E+12
981.9808	1182.	0.00				
31.4160	2.6307	-9078926.	48997.	-0.00840	6585.	1.20E+12
988.9273	1179.	0.00				
31.5520	2.6170	-8997645.	50617.	-0.00841	6526.	1.20E+12
995.8850	1175.	0.00				
31.6880	2.6033	-8913712.	52248.	-0.00842	6465.	1.20E+12
1003.	1172.	0.00				
31.8240	2.5895	-8827108.	53890.	-0.00844	6402.	1.20E+12
1010.	1168.	0.00				
31.9600	2.5758	-8737814.	55544.	-0.00845	6337.	1.20E+12
1017.	1165.	0.00				
32.0960	2.5620	-8645812.	57209.	-0.00846	6271.	1.20E+12
1024.	1162.	0.00				
32.2320	2.5481	-8551084.	58886.	-0.00847	6202.	1.20E+12
1031.	1159.	0.00				
32.3680	2.5343	-8453609.	60574.	-0.00848	6131.	1.20E+12
1038.	1156.	0.00				
32.5040	2.5205	-8353370.	62273.	-0.00849	6059.	1.20E+12
1045.	1153.	0.00				
32.6400	2.5066	-8250349.	63984.	-0.00851	5984.	1.20E+12
1052.	1150.	0.00				
32.7760	2.4927	-8144525.	65707.	-0.00852	5907.	1.20E+12
1059.	1147.	0.00				
32.9120	2.4788	-8035881.	67441.	-0.00853	5828.	1.20E+12
1066.	1144.	0.00				
33.0480	2.4649	-7924397.	69187.	-0.00854	5747.	1.20E+12
1073.	1141.	0.00				
33.1840	2.4509	-7810055.	70944.	-0.00855	5665.	1.20E+12
1080.	1138.	0.00				
33.3200	2.4370	-7692836.	72713.	-0.00856	5580.	1.20E+12
1087.	1135.	0.00				
33.4560	2.4230	-7572720.	74493.	-0.00857	5492.	1.20E+12
1095.	1133.	0.00				
33.5920	2.4090	-7449690.	76285.	-0.00858	5403.	1.20E+12
1102.	1130.	0.00				
33.7280	2.3950	-7323725.	78089.	-0.00859	5312.	1.20E+12
1109.	1127.	0.00				
33.8640	2.3809	-7194807.	79904.	-0.00860	5218.	1.20E+12
1116.	1125.	0.00				
34.0000	2.3669	-7062917.	81732.	-0.00861	5123.	1.20E+12
1123.	1122.	0.00				
34.1360	2.3528	-6928035.	83570.	-0.00862	5025.	1.20E+12
1130.	1120.	0.00				
34.2720	2.3388	-6790143.	85421.	-0.00863	4925.	1.20E+12
1137.	1117.	0.00				
34.4080	2.3247	-6649222.	87283.	-0.00864	4823.	1.20E+12
1145.	1115.	0.00				
34.5440	2.3106	-6505251.	89157.	-0.00865	4718.	1.20E+12

1152.	1113.	0.00				
34.6800	2.2964	-6358212.	91043.	-0.00866	4612.	1.20E+12
1159.	1110.	0.00				
34.8160	2.2823	-6208087.	92941.	-0.00866	4503.	1.20E+12
1166.	1108.	0.00				
34.9520	2.2682	-6054854.	94850.	-0.00867	4392.	1.20E+12
1174.	1106.	0.00				
35.0880	2.2540	-5898495.	96772.	-0.00868	4278.	1.20E+12
1181.	1104.	0.00				
35.2240	2.2398	-5738992.	98705.	-0.00869	4162.	1.20E+12
1188.	1102.	0.00				
35.3600	2.2256	-5576323.	100650.	-0.00870	4044.	1.20E+12
1195.	1100.	0.00				
35.4960	2.2114	-5410471.	102607.	-0.00870	3924.	1.20E+12
1203.	1098.	0.00				
35.6320	2.1972	-5241414.	104576.	-0.00871	3802.	1.20E+12
1210.	1095.	0.00				
35.7680	2.1830	-5069135.	106557.	-0.00872	3677.	1.20E+12
1217.	1093.	0.00				
35.9040	2.1688	-4893614.	108550.	-0.00872	3549.	1.20E+12
1225.	1092.	0.00				
36.0400	2.1545	-4714830.	110554.	-0.00873	3420.	1.20E+12
1232.	1090.	0.00				
36.1760	2.1403	-4532764.	112571.	-0.00874	3288.	1.20E+12
1240.	1088.	0.00				
36.3120	2.1260	-4347397.	114600.	-0.00874	3153.	1.20E+12
1247.	1086.	0.00				
36.4480	2.1117	-4158709.	116639.	-0.00875	3016.	1.20E+12
1252.	1082.	0.00				
36.5840	2.0975	-3966687.	118686.	-0.00876	2877.	1.20E+12
1256.	1078.	0.00				
36.7200	2.0832	-3771319.	120740.	-0.00876	2735.	1.20E+12
1261.	1074.	0.00				
36.8560	2.0689	-3572591.	122802.	-0.00877	2591.	1.20E+12
1266.	1070.	0.00				
36.9920	2.0546	-3370493.	124872.	-0.00877	2445.	1.20E+12
1270.	1066.	0.00				
37.1280	2.0402	-3165011.	126949.	-0.00877	2296.	1.20E+12
1275.	1062.	0.00				
37.2640	2.0259	-2956133.	129033.	-0.00878	2144.	1.20E+12
1280.	1058.	0.00				
37.4000	2.0116	-2743846.	131125.	-0.00878	1990.	1.20E+12
1284.	1054.	0.00				
37.5360	1.9972	-2528139.	133225.	-0.00879	1834.	1.20E+12
1289.	1050.	0.00				
37.6720	1.9829	-2308999.	135332.	-0.00879	1675.	1.20E+12
1293.	1047.	0.00				
37.8080	1.9686	-2086415.	137447.	-0.00879	1513.	1.20E+12
1298.	1043.	0.00				
37.9440	1.9542	-1860372.	139569.	-0.00880	1349.	1.20E+12

1303.	1039.	0.00				
38.0800	1.9399	-1630861.	141699.	-0.00880	1183.	1.20E+12
1307.	1036.	0.00				
38.2160	1.9255	-1397867.	143836.	-0.00880	1014.	1.20E+12
1312.	1032.	0.00				
38.3520	1.9111	-1161379.	145981.	-0.00880	842.3333	1.20E+12
1316.	1028.	0.00				
38.4880	1.8968	-921386.	148133.	-0.00880	668.2689	1.20E+12
1321.	1025.	0.00				
38.6240	1.8824	-677874.	150293.	-0.00880	491.6528	1.20E+12
1326.	1022.	0.00				
38.7600	1.8680	-430831.	152460.	-0.00880	312.4760	1.20E+12
1330.	1018.	0.00				
38.8960	1.8537	-180246.	154634.	-0.00881	130.7297	1.20E+12
1335.	1015.	0.00				
39.0320	1.8393	73895.	156816.	-0.00881	53.5948	1.20E+12
1339.	1012.	0.00				
39.1680	1.8249	331602.	159005.	-0.00880	240.5062	1.20E+12
1344.	1008.	0.00				
39.3040	1.8105	592887.	161202.	-0.00880	430.0135	1.20E+12
1348.	1005.	0.00				
39.4400	1.7962	857764.	163406.	-0.00880	622.1253	1.20E+12
1353.	1002.	0.00				
39.5760	1.7818	1126244.	165617.	-0.00880	816.8503	1.20E+12
1357.	998.6318	0.00				
39.7120	1.7675	1398340.	167836.	-0.00880	1014.	1.20E+12
1362.	995.5060	0.00				
39.8480	1.7531	1674062.	170062.	-0.00880	1214.	1.20E+12
1366.	992.4169	0.00				
39.9840	1.7387	1953423.	172296.	-0.00880	1417.	1.20E+12
1371.	989.3641	0.00				
40.1200	1.7244	2236436.	174537.	-0.00879	1622.	1.20E+12
1375.	986.3471	0.00				
40.2560	1.7100	2523112.	176785.	-0.00879	1830.	1.20E+12
1380.	983.3655	0.00				
40.3920	1.6957	2813462.	179041.	-0.00879	2041.	1.20E+12
1384.	980.4188	0.00				
40.5280	1.6814	3107500.	181303.	-0.00878	2254.	1.20E+12
1389.	977.5066	0.00				
40.6640	1.6670	3405237.	183574.	-0.00878	2470.	1.20E+12
1393.	974.6285	0.00				
40.8000	1.6527	3706684.	185851.	-0.00877	2688.	1.20E+12
1398.	971.7841	0.00				
40.9360	1.6384	4011855.	188136.	-0.00877	2910.	1.20E+12
1402.	968.9730	0.00				
41.0720	1.6241	4320759.	190428.	-0.00876	3134.	1.20E+12
1407.	966.1949	0.00				
41.2080	1.6098	4633410.	192727.	-0.00876	3361.	1.20E+12
1411.	963.4493	0.00				
41.3440	1.5955	4949820.	195033.	-0.00875	3590.	1.20E+12

1415.	960.7358	0.00					
	41.4800	1.5812	5269999.	197347.	-0.00874	3822.	1.20E+12
1420.	958.0542	0.00					
	41.6160	1.5670	5593960.	199668.	-0.00873	4057.	1.20E+12
1424.	955.4040	0.00					
	41.7520	1.5527	5921715.	201996.	-0.00873	4295.	1.20E+12
1429.	952.7849	0.00					
	41.8880	1.5385	6253275.	204331.	-0.00872	4535.	1.20E+12
1433.	950.1967	0.00					
	42.0240	1.5243	6588653.	206674.	-0.00871	4779.	1.20E+12
1438.	947.6389	0.00					
	42.1600	1.5101	6927859.	209024.	-0.00870	5025.	1.20E+12
1442.	945.1112	0.00					
	42.2960	1.4959	7270905.	211380.	-0.00869	5273.	1.20E+12
1446.	942.6134	0.00					
	42.4320	1.4817	7617804.	213744.	-0.00868	5525.	1.20E+12
1451.	940.1451	0.00					
	42.5680	1.4675	7968567.	216115.	-0.00867	5779.	1.20E+12
1455.	937.7060	0.00					
	42.7040	1.4534	8323205.	218494.	-0.00866	6037.	1.20E+12
1459.	935.2958	0.00					
	42.8400	1.4393	8681731.	220879.	-0.00865	6297.	1.20E+12
1464.	932.9143	0.00					
	42.9760	1.4252	9044155.	223272.	-0.00864	6560.	1.20E+12
1468.	930.5612	0.00					
	43.1120	1.4111	9410489.	225671.	-0.00862	6825.	1.20E+12
1472.	928.2362	0.00					
	43.2480	1.3970	9780746.	228078.	-0.00861	7094.	1.20E+12
1477.	925.9390	0.00					
	43.3840	1.3830	1.02E+07	230492.	-0.00860	7365.	1.20E+12
1481.	923.6694	0.00					
	43.5200	1.3690	1.05E+07	232912.	-0.00858	7639.	1.20E+12
1485.	921.4272	0.00					
	43.6560	1.3550	1.09E+07	235340.	-0.00857	7917.	1.20E+12
1490.	919.2120	0.00					
	43.7920	1.3410	1.13E+07	237775.	-0.00855	8197.	1.20E+12
1494.	917.0236	0.00					
	43.9280	1.3271	1.17E+07	240217.	-0.00854	8480.	1.20E+12
1498.	914.8619	0.00					
	44.0640	1.3131	1.21E+07	242666.	-0.00852	8765.	1.20E+12
1503.	912.7265	0.00					
	44.2000	1.2992	1.25E+07	245122.	-0.00850	9054.	1.20E+12
1507.	910.6173	0.00					
	44.3360	1.2854	1.29E+07	247584.	-0.00849	9346.	1.20E+12
1511.	908.5341	0.00					
	44.4720	1.2715	1.33E+07	250054.	-0.00847	9640.	1.20E+12
1515.	906.4765	0.00					
	44.6080	1.2577	1.37E+07	252531.	-0.00845	9938.	1.20E+12
1520.	904.4445	0.00					
	44.7440	1.2440	1.41E+07	255015.	-0.00843	10238.	1.20E+12

1524.	902.4378	0.00				
44.8800	1.2302	1.45E+07	257505.	-0.00841	10541.	1.20E+12
1528.	900.4562	0.00				
45.0160	1.2165	1.50E+07	260000.	-0.00839	10848.	1.20E+12
1529.	903.1199	0.00				
45.1520	1.2028	1.54E+07	262470.	-0.00837	11157.	1.20E+12
1499.	942.6694	0.00				
45.2880	1.1892	1.58E+07	264890.	-0.00835	11469.	1.20E+12
1467.	986.7075	0.00				
45.4240	1.1756	1.62E+07	267258.	-0.00833	11784.	1.20E+12
1434.	1036.	0.00				
45.5600	1.1620	1.67E+07	269570.	-0.00831	12102.	1.20E+12
1399.	1092.	0.00				
45.6960	1.1485	1.71E+07	271823.	-0.00828	12422.	1.20E+12
1362.	1156.	0.00				
45.8320	1.1350	1.76E+07	274015.	-0.00826	12745.	1.20E+12
1323.	1230.	0.00				
45.9680	1.1215	1.80E+07	276140.	-0.00824	13071.	1.20E+12
1281.	1317.	0.00				
46.1040	1.1081	1.85E+07	278193.	-0.00821	13399.	1.20E+12
1235.	1420.	0.00				
46.2400	1.0947	1.89E+07	280169.	-0.00819	13729.	1.20E+12
1186.	1546.	0.00				
46.3760	1.0814	1.94E+07	282060.	-0.00816	14062.	1.20E+12
1132.	1704.	0.00				
46.5120	1.0681	1.99E+07	283857.	-0.00813	14397.	1.20E+12
1071.	1908.	0.00				
46.6480	1.0548	2.03E+07	285549.	-0.00810	14734.	1.20E+12
1002.	2187.	0.00				
46.7840	1.0416	2.08E+07	287118.	-0.00808	15073.	1.20E+12
921.5548	2594.	0.00				
46.9200	1.0285	2.13E+07	288542.	-0.00805	15414.	1.20E+12
822.9970	3264.	0.00				
47.0560	1.0153	2.17E+07	289778.	-0.00802	15756.	1.20E+12
691.5070	4638.	0.00				
47.1920	1.0023	2.22E+07	290724.	-0.00799	16100.	1.20E+12
467.7319	10171.	0.00				
47.3280	0.9893	2.27E+07	290695.	-0.00796	16444.	1.20E+12
-503.428	8809.	0.00				
47.4640	0.9763	2.31E+07	289704.	-0.00793	16788.	1.20E+12
-710.777	4434.	0.00				
47.6000	0.9634	2.36E+07	288439.	-0.00790	17130.	1.20E+12
-839.751	3187.	0.00				
47.7360	0.9505	2.41E+07	286987.	-0.00786	17471.	1.20E+12
-938.595	2559.	0.00				
47.8720	0.9377	2.46E+07	285389.	-0.00783	17810.	1.20E+12
-1021.	2171.	0.00				
48.0080	0.9250	2.50E+07	280842.	-0.00780	18146.	1.20E+12
-4552.	8031.	0.00				
48.1440	0.9123	2.55E+07	273407.	-0.00776	18474.	1.20E+12

-4559.	8156.	0.00				
48.2800	0.8996	2.59E+07	265960.	-0.00773	18794.	1.20E+12
-4567.	8284.	0.00				
48.4160	0.8871	2.63E+07	258502.	-0.00769	19104.	1.20E+12
-4573.	8413.	0.00				
48.5520	0.8745	2.68E+07	251034.	-0.00766	19406.	1.20E+12
-4579.	8545.	0.00				
48.6880	0.8621	2.72E+07	243557.	-0.00762	19698.	1.20E+12
-4584.	8679.	0.00				
48.8240	0.8497	2.76E+07	236072.	-0.00758	19982.	1.20E+12
-4589.	8815.	0.00				
48.9600	0.8373	2.79E+07	228579.	-0.00754	20257.	1.20E+12
-4593.	8953.	0.00				
49.0960	0.8250	2.83E+07	221080.	-0.00751	20523.	1.20E+12
-4597.	9093.	0.00				
49.2320	0.8128	2.87E+07	213575.	-0.00747	20781.	1.20E+12
-4600.	9235.	0.00				
49.3680	0.8007	2.90E+07	206066.	-0.00743	21029.	1.20E+12
-4602.	9380.	0.00				
49.5040	0.7886	2.93E+07	198555.	-0.00739	21268.	1.20E+12
-4604.	9528.	0.00				
49.6400	0.7766	2.96E+07	191040.	-0.00735	21499.	1.20E+12
-4605.	9677.	0.00				
49.7760	0.7646	2.99E+07	183525.	-0.00731	21721.	1.20E+12
-4605.	9830.	0.00				
49.9120	0.7527	3.02E+07	176010.	-0.00727	21933.	1.20E+12
-4605.	9984.	0.00				
50.0480	0.7409	3.05E+07	168495.	-0.00723	22137.	1.20E+12
-4604.	10142.	0.00				
50.1840	0.7291	3.08E+07	160983.	-0.00718	22332.	1.20E+12
-4603.	10302.	0.00				
50.3200	0.7174	3.10E+07	153473.	-0.00714	22518.	1.20E+12
-4600.	10465.	0.00				
50.4560	0.7058	3.13E+07	145968.	-0.00710	22696.	1.20E+12
-4597.	10630.	0.00				
50.5920	0.6943	3.15E+07	138468.	-0.00706	22864.	1.20E+12
-4594.	10799.	0.00				
50.7280	0.6828	3.17E+07	130974.	-0.00701	23023.	1.20E+12
-4590.	10970.	0.00				
50.8640	0.6714	3.20E+07	123487.	-0.00697	23174.	1.20E+12
-4585.	11145.	0.00				
51.0000	0.6600	3.21E+07	116010.	-0.00693	23316.	1.20E+12
-4579.	11323.	0.00				
51.1360	0.6488	3.23E+07	108541.	-0.00688	23449.	1.20E+12
-4573.	11503.	0.00				
51.2720	0.6376	3.25E+07	101084.	-0.00684	23573.	1.20E+12
-4566.	11688.	0.00				
51.4080	0.6264	3.27E+07	93639.	-0.00679	23688.	1.20E+12
-4558.	11875.	0.00				
51.5440	0.6154	3.28E+07	86207.	-0.00675	23794.	1.20E+12

-4550.	12066.	0.00				
51.6800	0.6044	3.29E+07	78789.	-0.00670	23892.	1.20E+12
-4541.	12261.	0.00				
51.8160	0.5935	3.31E+07	71386.	-0.00666	23981.	1.20E+12
-4531.	12459.	0.00				
51.9520	0.5827	3.32E+07	64001.	-0.00661	24061.	1.20E+12
-4520.	12661.	0.00				
52.0880	0.5719	3.33E+07	56633.	-0.00657	24132.	1.20E+12
-4509.	12866.	0.00				
52.2240	0.5612	3.34E+07	49285.	-0.00652	24195.	1.20E+12
-4497.	13076.	0.00				
52.3600	0.5506	3.34E+07	41956.	-0.00648	24249.	1.20E+12
-4484.	13290.	0.00				
52.4960	0.5401	3.35E+07	34650.	-0.00643	24294.	1.20E+12
-4470.	13508.	0.00				
52.6320	0.5296	3.35E+07	27366.	-0.00639	24331.	1.20E+12
-4456.	13731.	0.00				
52.7680	0.5192	3.36E+07	20106.	-0.00634	24359.	1.20E+12
-4441.	13958.	0.00				
52.9040	0.5089	3.36E+07	12872.	-0.00630	24379.	1.20E+12
-4425.	14189.	0.00				
53.0400	0.4987	3.36E+07	5665.	-0.00625	24390.	1.20E+12
-4408.	14426.	0.00				
53.1760	0.4885	3.36E+07	-1515.	-0.00620	24392.	1.20E+12
-4390.	14667.	0.00				
53.3120	0.4784	3.36E+07	-8665.	-0.00616	24386.	1.20E+12
-4372.	14913.	0.00				
53.4480	0.4684	3.36E+07	-15784.	-0.00611	24372.	1.20E+12
-4353.	15165.	0.00				
53.5840	0.4585	3.36E+07	-22871.	-0.00607	24349.	1.20E+12
-4333.	15422.	0.00				
53.7200	0.4486	3.35E+07	-29925.	-0.00602	24317.	1.20E+12
-4312.	15685.	0.00				
53.8560	0.4388	3.35E+07	-36944.	-0.00598	24278.	1.20E+12
-4290.	15954.	0.00				
53.9920	0.4291	3.34E+07	-43926.	-0.00593	24230.	1.20E+12
-4267.	16229.	0.00				
54.1280	0.4195	3.33E+07	-50871.	-0.00589	24174.	1.20E+12
-4244.	16511.	0.00				
54.2640	0.4099	3.32E+07	-57776.	-0.00584	24110.	1.20E+12
-4219.	16798.	0.00				
54.4000	0.4004	3.31E+07	-64641.	-0.00580	24037.	1.20E+12
-4194.	17093.	0.00				
54.5360	0.3910	3.30E+07	-71464.	-0.00575	23957.	1.20E+12
-4167.	17395.	0.00				
54.6720	0.3816	3.29E+07	-78242.	-0.00571	23868.	1.20E+12
-4140.	17705.	0.00				
54.8080	0.3724	3.28E+07	-84976.	-0.00566	23771.	1.20E+12
-4112.	18022.	0.00				
54.9440	0.3632	3.26E+07	-91662.	-0.00562	23667.	1.20E+12

-4083.	18347.	0.00				
55.0800	0.3540	3.25E+07	-98301.	-0.00557	23554.	1.20E+12
-4052.	18681.	0.00				
55.2160	0.3450	3.23E+07	-104888.	-0.00553	23434.	1.20E+12
-4021.	19023.	0.00				
55.3520	0.3360	3.21E+07	-111424.	-0.00548	23306.	1.20E+12
-3989.	19375.	0.00				
55.4880	0.3271	3.19E+07	-117907.	-0.00544	23170.	1.20E+12
-3955.	19737.	0.00				
55.6240	0.3182	3.17E+07	-124334.	-0.00540	23027.	1.20E+12
-3921.	20108.	0.00				
55.7600	0.3094	3.15E+07	-130704.	-0.00535	22876.	1.20E+12
-3885.	20491.	0.00				
55.8960	0.3007	3.13E+07	-137015.	-0.00531	22717.	1.20E+12
-3849.	20885.	0.00				
56.0320	0.2921	3.11E+07	-143265.	-0.00527	22552.	1.20E+12
-3811.	21291.	0.00				
56.1680	0.2835	3.09E+07	-149452.	-0.00523	22378.	1.20E+12
-3772.	21709.	0.00				
56.3040	0.2751	3.06E+07	-155575.	-0.00518	22198.	1.20E+12
-3732.	22141.	0.00				
56.4400	0.2666	3.03E+07	-161631.	-0.00514	22010.	1.20E+12
-3690.	22587.	0.00				
56.5760	0.2583	3.01E+07	-167619.	-0.00510	21815.	1.20E+12
-3647.	23048.	0.00				
56.7120	0.2500	2.98E+07	-173535.	-0.00506	21613.	1.20E+12
-3603.	23524.	0.00				
56.8480	0.2417	2.95E+07	-179378.	-0.00502	21404.	1.20E+12
-3558.	24018.	0.00				
56.9840	0.2336	2.92E+07	-185146.	-0.00498	21189.	1.20E+12
-3511.	24530.	0.00				
57.1200	0.2255	2.89E+07	-190837.	-0.00494	20966.	1.20E+12
-3463.	25061.	0.00				
57.2560	0.2175	2.86E+07	-196447.	-0.00490	20737.	1.20E+12
-3413.	25613.	0.00				
57.3920	0.2095	2.83E+07	-201975.	-0.00486	20501.	1.20E+12
-3361.	26187.	0.00				
57.5280	0.2016	2.79E+07	-207417.	-0.00483	20259.	1.20E+12
-3308.	26785.	0.00				
57.6640	0.1937	2.76E+07	-212772.	-0.00479	20010.	1.20E+12
-3254.	27409.	0.00				
57.8000	0.1860	2.72E+07	-218036.	-0.00475	19755.	1.20E+12
-3197.	28062.	0.00				
57.9360	0.1782	2.69E+07	-223207.	-0.00471	19494.	1.20E+12
-3139.	28745.	0.00				
58.0720	0.1706	2.65E+07	-228281.	-0.00468	19227.	1.20E+12
-3079.	29462.	0.00				
58.2080	0.1630	2.61E+07	-233255.	-0.00464	18953.	1.20E+12
-3017.	30215.	0.00				
58.3440	0.1554	2.57E+07	-238127.	-0.00461	18674.	1.20E+12

-2953.	31009.	0.00				
58.4800	0.1479	2.54E+07	-242892.	-0.00457	18390.	1.20E+12
-2887.	31847.	0.00				
58.6160	0.1405	2.50E+07	-247547.	-0.00454	18099.	1.20E+12
-2818.	32735.	0.00				
58.7520	0.1331	2.45E+07	-252088.	-0.00450	17804.	1.20E+12
-2747.	33678.	0.00				
58.8880	0.1258	2.41E+07	-256511.	-0.00447	17503.	1.20E+12
-2673.	34684.	0.00				
59.0240	0.1185	2.37E+07	-260812.	-0.00444	17196.	1.20E+12
-2597.	35759.	0.00				
59.1600	0.1113	2.33E+07	-264985.	-0.00441	16885.	1.20E+12
-2518.	36915.	0.00				
59.2960	0.1041	2.28E+07	-269027.	-0.00437	16569.	1.20E+12
-2435.	38163.	0.00				
59.4320	0.09703	2.24E+07	-272931.	-0.00434	16248.	1.20E+12
-2349.	39517.	0.00				
59.5680	0.08996	2.20E+07	-276693.	-0.00431	15923.	1.20E+12
-2260.	40997.	0.00				
59.7040	0.08295	2.15E+07	-280304.	-0.00428	15593.	1.20E+12
-2166.	42623.	0.00				
59.8400	0.07598	2.10E+07	-283760.	-0.00426	15259.	1.20E+12
-2068.	44427.	0.00				
59.9760	0.06906	2.06E+07	-287052.	-0.00423	14921.	1.20E+12
-1965.	46448.	0.00				
60.1120	0.06218	2.01E+07	-290171.	-0.00420	14580.	1.20E+12
-1857.	48738.	0.00				
60.2480	0.05535	1.96E+07	-293108.	-0.00417	14235.	1.20E+12
-1742.	51370.	0.00				
60.3840	0.04856	1.91E+07	-295852.	-0.00415	13886.	1.20E+12
-1620.	54451.	0.00				
60.5200	0.04182	1.87E+07	-298364.	-0.00412	13534.	1.20E+12
-1458.	56891.	0.00				
60.6560	0.03512	1.82E+07	-300554.	-0.00410	13180.	1.20E+12
-1227.	57019.	0.00				
60.7920	0.02845	1.77E+07	-302368.	-0.00407	12823.	1.20E+12
-996.333	57146.	0.00				
60.9280	0.02183	1.72E+07	-303807.	-0.00405	12464.	1.20E+12
-766.102	57274.	0.00				
61.0640	0.01524	1.67E+07	-304869.	-0.00402	12103.	1.20E+12
-536.176	57402.	0.00				
61.2000	0.00870	1.62E+07	-305557.	-0.00400	11742.	1.20E+12
-306.523	57530.	0.00				
61.3360	0.00218	1.57E+07	-305870.	-0.00398	11380.	1.20E+12
-77.115	57658.	0.00				
61.4720	-0.00430	1.52E+07	-305809.	-0.00396	11018.	1.20E+12
152.0808	57786.	0.00				
61.6080	-0.01074	1.47E+07	-305374.	-0.00394	10656.	1.20E+12
381.0941	57913.	0.00				
61.7440	-0.01715	1.42E+07	-304565.	-0.00392	10295.	1.20E+12

609.9570	58041.	0.00				
61.8800	-0.02353	1.37E+07	-303383.	-0.00390	9935.	1.20E+12
838.7010	58169.	0.00				
62.0160	-0.02988	1.32E+07	-301828.	-0.00388	9577.	1.20E+12
1067.	58297.	0.00				
62.1520	-0.03620	1.27E+07	-299899.	-0.00386	9221.	1.20E+12
1296.	58425.	0.00				
62.2880	-0.04249	1.22E+07	-297598.	-0.00385	8867.	1.20E+12
1525.	58553.	0.00				
62.4240	-0.04876	1.17E+07	-294923.	-0.00383	8516.	1.20E+12
1753.	58681.	0.00				
62.5600	-0.05500	1.13E+07	-291903.	-0.00382	8169.	1.20E+12
1947.	57791.	0.00				
62.6960	-0.06121	1.08E+07	-288607.	-0.00380	7825.	1.20E+12
2092.	55781.	0.00				
62.8320	-0.06740	1.03E+07	-285078.	-0.00379	7485.	1.20E+12
2233.	54068.	0.00				
62.9680	-0.07357	9858363.	-281321.	-0.00377	7150.	1.20E+12
2370.	52586.	0.00				
63.1040	-0.07971	9402403.	-277343.	-0.00376	6819.	1.20E+12
2505.	51291.	0.00				
63.2400	-0.08584	8953116.	-273146.	-0.00375	6494.	1.20E+12
2638.	50149.	0.00				
63.3760	-0.09194	8510854.	-268735.	-0.00373	6173.	1.20E+12
2768.	49133.	0.00				
63.5120	-0.09803	8075964.	-264113.	-0.00372	5857.	1.20E+12
2897.	48224.	0.00				
63.6480	-0.104	7648789.	-259282.	-0.00371	5548.	1.20E+12
3024.	47406.	0.00				
63.7840	-0.110	7229667.	-254245.	-0.00370	5244.	1.20E+12
3149.	46666.	0.00				
63.9200	-0.116	6818934.	-249003.	-0.00369	4946.	1.20E+12
3274.	45993.	0.00				
64.0560	-0.122	6416921.	-243559.	-0.00368	4654.	1.20E+12
3398.	45380.	0.00				
64.1920	-0.128	6023958.	-237913.	-0.00368	4369.	1.20E+12
3521.	44818.	0.00				
64.3280	-0.134	5640373.	-232068.	-0.00367	4091.	1.20E+12
3643.	44302.	0.00				
64.4640	-0.140	5266489.	-226023.	-0.00366	3820.	1.20E+12
3764.	43827.	0.00				
64.6000	-0.146	4902632.	-219781.	-0.00365	3556.	1.20E+12
3885.	43389.	0.00				
64.7360	-0.152	4549123.	-213342.	-0.00365	3299.	1.20E+12
4006.	42984.	0.00				
64.8720	-0.158	4206284.	-206706.	-0.00364	3051.	1.20E+12
4126.	42608.	0.00				
65.0080	-0.164	3874434.	-199874.	-0.00364	2810.	1.20E+12
4246.	42259.	0.00				
65.1440	-0.170	3553894.	-192847.	-0.00363	2578.	1.20E+12

4366.	41934.	0.00					
65.2800	-0.176	3244982.	-185624.	-0.00363	2354.	1.20E+12	
4485.	41632.	0.00					
65.4160	-0.182	2948016.	-178207.	-0.00362	2138.	1.20E+12	
4605.	41350.	0.00					
65.5520	-0.188	2663314.	-170594.	-0.00362	1932.	1.20E+12	
4724.	41087.	0.00					
65.6880	-0.194	2391196.	-162787.	-0.00361	1734.	1.20E+12	
4844.	40842.	0.00					
65.8240	-0.199	2131979.	-154784.	-0.00361	1546.	1.20E+12	
4963.	40612.	0.00					
65.9600	-0.205	1885980.	-146587.	-0.00361	1368.	1.20E+12	
5083.	40397.	0.00					
66.0960	-0.211	1653519.	-138194.	-0.00361	1199.	1.20E+12	
5202.	40195.	0.00					
66.2320	-0.217	1434914.	-129606.	-0.00360	1041.	1.20E+12	
5322.	40007.	0.00					
66.3680	-0.223	1230484.	-120823.	-0.00360	892.4539	1.20E+12	
5442.	39830.	0.00					
66.5040	-0.229	1040549.	-111843.	-0.00360	754.6964	1.20E+12	
5562.	39664.	0.00					
66.6400	-0.235	865428.	-102667.	-0.00360	627.6839	1.20E+12	
5683.	39509.	0.00					
66.7760	-0.241	705444.	-93294.	-0.00360	511.6489	1.20E+12	
5803.	39363.	0.00					
66.9120	-0.246	560916.	-83724.	-0.00360	406.8248	1.20E+12	
5924.	39226.	0.00					
67.0480	-0.252	432167.	-73957.	-0.00360	313.4452	1.20E+12	
6046.	39098.	0.00					
67.1840	-0.258	319521.	-63991.	-0.00360	231.7443	1.20E+12	
6167.	38978.	0.00					
67.3200	-0.264	223301.	-53826.	-0.00360	161.9572	1.20E+12	
6289.	38866.	0.00					
67.4560	-0.270	143832.	-43462.	-0.00360	104.3194	1.20E+12	
6412.	38761.	0.00					
67.5920	-0.276	81440.	-32898.	-0.00360	59.0673	1.20E+12	
6534.	38662.	0.00					
67.7280	-0.282	36452.	-22134.	-0.00360	26.4380	1.20E+12	
6658.	38570.	0.00					
67.8640	-0.288	9196.	-11168.	-0.00360	6.6694	1.20E+12	
6781.	38485.	0.00					
68.0000	-0.293	0.00	0.00	-0.00360	0.00	1.20E+12	
6905.	19202.	0.00					

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          =      5.34765934 inches
Computed slope at pile head   =     -0.0067082 radians
Maximum bending moment        =     33630950. inch-lbs
Maximum shear force           =     -305870. lbs
Depth of maximum bending moment = 53.17600000 feet below pile head
Depth of maximum shear force   = 61.33600000 feet below pile head
Number of iterations          =          27
Number of zero deflection points =          1
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
No.		1	2	lbs	inches	radians	
1	V, lb	0.00	M, in-lb	0.00	5.3477	-0.00671	
		-305870.	3.36E+07				

```

Maximum pile-head deflection = 5.3476593425 inches
Maximum pile-head rotation   = -0.0067082325 radians = -0.384353 deg.
  
```

The analysis ended normally.

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 53ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 53ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 53ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 53ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:45:33

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	51.50000	4.00000
3	54.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	---
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
----	-----	-----
1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	5.1143	0.00960	-1.23E-04	-0.00285	6.96E-06	1.20E+12	
-237.356	173.8103	0.00					
0.1360	5.1097	-316.095	-389.162	-0.00285	0.2293	1.20E+12	
-239.553	352.3103	0.00					
0.2720	5.1050	-1270.	-781.896	-0.00285	0.9213	1.20E+12	
-241.745	357.0332	0.00					
0.4080	5.1004	-2868.	-1178.	-0.00285	2.0803	1.20E+12	
-243.933	361.7898	0.00					
0.5440	5.0957	-5116.	-1578.	-0.00285	3.7105	1.20E+12	

-246.117	366.5804	0.00				
0.6800	5.0910	-8019.	-1982.	-0.00285	5.8161	1.20E+12
-248.296	371.4054	0.00				
0.8160	5.0864	-11584.	-2389.	-0.00285	8.4014	1.20E+12
-250.471	376.2651	0.00				
0.9520	5.0817	-15815.	-2799.	-0.00285	11.4706	1.20E+12
-252.641	381.1600	0.00				
1.0880	5.0771	-20720.	-3213.	-0.00285	15.0278	1.20E+12
-254.807	386.0903	0.00				
1.2240	5.0724	-26303.	-3631.	-0.00285	19.0772	1.20E+12
-256.969	391.0565	0.00				
1.3600	5.0678	-32571.	-4052.	-0.00285	23.6230	1.20E+12
-259.125	396.0589	0.00				
1.4960	5.0631	-39528.	-4477.	-0.00285	28.6693	1.20E+12
-261.277	401.0979	0.00				
1.6320	5.0584	-47182.	-4905.	-0.00285	34.2204	1.20E+12
-263.424	406.1740	0.00				
1.7680	5.0538	-55537.	-5336.	-0.00285	40.2804	1.20E+12
-265.567	411.2876	0.00				
1.9040	5.0491	-64600.	-5771.	-0.00285	46.8534	1.20E+12
-267.704	416.4390	0.00				
2.0400	5.0445	-74375.	-6210.	-0.00285	53.9435	1.20E+12
-269.837	421.6287	0.00				
2.1760	5.0398	-84870.	-6652.	-0.00285	61.5548	1.20E+12
-271.964	426.8572	0.00				
2.3120	5.0351	-96088.	-7098.	-0.00286	69.6915	1.20E+12
-274.087	432.1247	0.00				
2.4480	5.0305	-108037.	-7547.	-0.00286	78.3577	1.20E+12
-276.204	437.4319	0.00				
2.5840	5.0258	-120721.	-7999.	-0.00286	87.5575	1.20E+12
-278.316	442.7792	0.00				
2.7200	5.0212	-134147.	-8455.	-0.00286	97.2949	1.20E+12
-280.423	448.1669	0.00				
2.8560	5.0165	-148319.	-8915.	-0.00286	107.5739	1.20E+12
-282.524	453.5957	0.00				
2.9920	5.0118	-163244.	-9377.	-0.00286	118.3988	1.20E+12
-284.620	459.0659	0.00				
3.1280	5.0072	-178927.	-9844.	-0.00286	129.7735	1.20E+12
-286.711	464.5780	0.00				
3.2640	5.0025	-195374.	-10313.	-0.00286	141.7020	1.20E+12
-288.796	470.1326	0.00				
3.4000	4.9979	-212590.	-10786.	-0.00286	154.1884	1.20E+12
-290.876	475.7302	0.00				
3.5360	4.9932	-230580.	-11263.	-0.00286	167.2367	1.20E+12
-292.950	481.3712	0.00				
3.6720	4.9885	-249351.	-11742.	-0.00286	180.8509	1.20E+12
-295.018	487.0563	0.00				
3.8080	4.9839	-268907.	-12226.	-0.00286	195.0350	1.20E+12
-297.080	492.7858	0.00				
3.9440	4.9792	-289255.	-12712.	-0.00286	209.7930	1.20E+12

-299.137	498.5605	0.00				
4.0800	4.9745	-310400.	-13202.	-0.00286	225.1288	1.20E+12
-301.187	504.3807	0.00				
4.2160	4.9699	-332346.	-13695.	-0.00286	241.0465	1.20E+12
-303.232	510.2472	0.00				
4.3520	4.9652	-355101.	-14192.	-0.00286	257.5499	1.20E+12
-305.270	516.1605	0.00				
4.4880	4.9605	-378668.	-14692.	-0.00286	274.6430	1.20E+12
-307.302	522.1211	0.00				
4.6240	4.9559	-403054.	-15195.	-0.00286	292.3298	1.20E+12
-309.328	528.1298	0.00				
4.7600	4.9512	-428264.	-15701.	-0.00286	310.6141	1.20E+12
-311.348	534.1870	0.00				
4.8960	4.9465	-454303.	-16211.	-0.00286	329.4999	1.20E+12
-313.361	540.2934	0.00				
5.0320	4.9419	-481176.	-16724.	-0.00286	348.9910	1.20E+12
-315.368	546.4497	0.00				
5.1680	4.9372	-508890.	-17240.	-0.00286	369.0913	1.20E+12
-317.368	552.6565	0.00				
5.3040	4.9325	-537449.	-17760.	-0.00286	389.8046	1.20E+12
-319.361	558.9146	0.00				
5.4400	4.9278	-566858.	-18283.	-0.00286	411.1349	1.20E+12
-321.348	565.2244	0.00				
5.5760	4.9232	-597124.	-18809.	-0.00287	433.0860	1.20E+12
-323.328	571.5869	0.00				
5.7120	4.9185	-628250.	-19338.	-0.00287	455.6617	1.20E+12
-325.301	578.0026	0.00				
5.8480	4.9138	-660243.	-19871.	-0.00287	478.8657	1.20E+12
-327.267	584.4724	0.00				
5.9840	4.9091	-693108.	-20406.	-0.00287	502.7019	1.20E+12
-329.225	590.9969	0.00				
6.1200	4.9045	-726849.	-20945.	-0.00287	527.1742	1.20E+12
-331.177	597.5769	0.00				
6.2560	4.8998	-761473.	-21487.	-0.00287	552.2861	1.20E+12
-333.121	604.2132	0.00				
6.3920	4.8951	-796983.	-22032.	-0.00287	578.0416	1.20E+12
-335.058	610.9066	0.00				
6.5280	4.8904	-833387.	-22581.	-0.00287	604.4444	1.20E+12
-336.987	617.6579	0.00				
6.6640	4.8857	-870687.	-23132.	-0.00287	631.4981	1.20E+12
-338.909	624.4679	0.00				
6.8000	4.8810	-908891.	-23687.	-0.00287	659.2064	1.20E+12
-340.823	631.3375	0.00				
6.9360	4.8763	-948002.	-24245.	-0.00288	687.5732	1.20E+12
-342.729	638.2675	0.00				
7.0720	4.8716	-988026.	-24806.	-0.00288	716.6021	1.20E+12
-344.628	645.2589	0.00				
7.2080	4.8669	-1028968.	-25370.	-0.00288	746.2966	1.20E+12
-346.518	652.3126	0.00				
7.3440	4.8622	-1070832.	-25937.	-0.00288	776.6606	1.20E+12

-348.400	659.4294	0.00				
7.4800	4.8575	-1113625.	-26507.	-0.00288	807.6976	1.20E+12
-350.274	666.6104	0.00				
7.6160	4.8528	-1157351.	-27080.	-0.00288	839.4112	1.20E+12
-352.139	673.8565	0.00				
7.7520	4.8481	-1202014.	-27656.	-0.00288	871.8050	1.20E+12
-353.996	681.1687	0.00				
7.8880	4.8434	-1247620.	-28235.	-0.00289	904.8827	1.20E+12
-355.845	688.5480	0.00				
8.0240	4.8387	-1294175.	-28818.	-0.00289	938.6478	1.20E+12
-357.685	695.9956	0.00				
8.1600	4.8340	-1341681.	-29403.	-0.00289	973.1039	1.20E+12
-359.516	703.5124	0.00				
8.2960	4.8293	-1390146.	-29991.	-0.00289	1008.	1.20E+12
-361.337	711.0996	0.00				
8.4320	4.8246	-1439572.	-30582.	-0.00289	1044.	1.20E+12
-363.150	718.7584	0.00				
8.5680	4.8198	-1489966.	-31176.	-0.00290	1081.	1.20E+12
-364.954	726.4898	0.00				
8.7040	4.8151	-1541332.	-31774.	-0.00290	1118.	1.20E+12
-366.748	734.2950	0.00				
8.8400	4.8104	-1593675.	-32374.	-0.00290	1156.	1.20E+12
-368.533	742.1754	0.00				
8.9760	4.8056	-1647000.	-32976.	-0.00290	1195.	1.20E+12
-370.308	750.1320	0.00				
9.1120	4.8009	-1701310.	-33582.	-0.00290	1234.	1.20E+12
-372.074	758.1663	0.00				
9.2480	4.7962	-1756612.	-34191.	-0.00291	1274.	1.20E+12
-373.829	766.2795	0.00				
9.3840	4.7914	-1812909.	-34802.	-0.00291	1315.	1.20E+12
-375.575	774.4731	0.00				
9.5200	4.7867	-1870207.	-35417.	-0.00291	1356.	1.20E+12
-377.310	782.7483	0.00				
9.6560	4.7819	-1928509.	-36034.	-0.00291	1399.	1.20E+12
-379.035	791.1066	0.00				
9.7920	4.7772	-1987821.	-36654.	-0.00292	1442.	1.20E+12
-380.749	799.5495	0.00				
9.9280	4.7724	-2048147.	-37277.	-0.00292	1485.	1.20E+12
-382.453	808.0785	0.00				
10.0640	4.7676	-2109492.	-37902.	-0.00292	1530.	1.20E+12
-384.146	816.6951	0.00				
10.2000	4.7629	-2171860.	-38530.	-0.00292	1575.	1.20E+12
-385.828	825.4009	0.00				
10.3360	4.7581	-2235256.	-39162.	-0.00293	1621.	1.20E+12
-387.498	834.1976	0.00				
10.4720	4.7533	-2299683.	-39795.	-0.00293	1668.	1.20E+12
-389.158	843.0869	0.00				
10.6080	4.7485	-2365148.	-40432.	-0.00293	1715.	1.20E+12
-390.806	852.0704	0.00				
10.7440	4.7437	-2431653.	-41071.	-0.00294	1764.	1.20E+12

-392.442	861.1499	0.00				
10.8800	4.7389	-2499203.	-41713.	-0.00294	1813.	1.20E+12
-394.066	870.3274	0.00				
11.0160	4.7341	-2567803.	-42357.	-0.00294	1862.	1.20E+12
-395.678	879.6046	0.00				
11.1520	4.7293	-2637456.	-43004.	-0.00295	1913.	1.20E+12
-397.279	888.9835	0.00				
11.2880	4.7245	-2708168.	-43654.	-0.00295	1964.	1.20E+12
-398.866	898.4661	0.00				
11.4240	4.7197	-2779942.	-44306.	-0.00296	2016.	1.20E+12
-400.441	908.0545	0.00				
11.5600	4.7149	-2852783.	-44961.	-0.00296	2069.	1.20E+12
-402.003	917.7507	0.00				
11.6960	4.7100	-2926694.	-45618.	-0.00296	2123.	1.20E+12
-403.552	927.5570	0.00				
11.8320	4.7052	-3001681.	-46278.	-0.00297	2177.	1.20E+12
-405.088	937.4757	0.00				
11.9680	4.7003	-3077746.	-46940.	-0.00297	2232.	1.20E+12
-406.610	947.5089	0.00				
12.1040	4.6955	-3154894.	-47605.	-0.00298	2288.	1.20E+12
-408.119	957.6592	0.00				
12.2400	4.6906	-3233129.	-48272.	-0.00298	2345.	1.20E+12
-409.613	967.9290	0.00				
12.3760	4.6858	-3312455.	-48942.	-0.00298	2402.	1.20E+12
-411.094	978.3208	0.00				
12.5120	4.6809	-3392876.	-49614.	-0.00299	2461.	1.20E+12
-412.560	988.8373	0.00				
12.6480	4.6760	-3474396.	-50289.	-0.00299	2520.	1.20E+12
-414.011	999.4812	0.00				
12.7840	4.6711	-3557019.	-50966.	-0.00300	2580.	1.20E+12
-415.448	1010.	0.00				
12.9200	4.6662	-3640748.	-51645.	-0.00300	2641.	1.20E+12
-416.869	1021.	0.00				
13.0560	4.6613	-3725587.	-52326.	-0.00301	2702.	1.20E+12
-418.275	1032.	0.00				
13.1920	4.6564	-3811540.	-53010.	-0.00301	2764.	1.20E+12
-419.665	1043.	0.00				
13.3280	4.6515	-3898611.	-53696.	-0.00302	2828.	1.20E+12
-421.039	1055.	0.00				
13.4640	4.6466	-3986804.	-54384.	-0.00302	2892.	1.20E+12
-422.397	1066.	0.00				
13.6000	4.6416	-4076121.	-55075.	-0.00303	2956.	1.20E+12
-423.738	1078.	0.00				
13.7360	4.6367	-4166568.	-55767.	-0.00303	3022.	1.20E+12
-425.063	1090.	0.00				
13.8720	4.6317	-4258146.	-56462.	-0.00304	3088.	1.20E+12
-426.370	1102.	0.00				
14.0080	4.6267	-4350860.	-57159.	-0.00305	3156.	1.20E+12
-427.660	1114.	0.00				
14.1440	4.6218	-4444713.	-57858.	-0.00305	3224.	1.20E+12

-428.932	1126.	0.00				
14.2800	4.6168	-4539708.	-58559.	-0.00306	3293.	1.20E+12
-430.186	1138.	0.00				
14.4160	4.6118	-4635849.	-59262.	-0.00306	3362.	1.20E+12
-431.421	1151.	0.00				
14.5520	4.6068	-4733139.	-59967.	-0.00307	3433.	1.20E+12
-432.638	1164.	0.00				
14.6880	4.6018	-4831582.	-60674.	-0.00308	3504.	1.20E+12
-433.836	1177.	0.00				
14.8240	4.5967	-4931180.	-61383.	-0.00308	3577.	1.20E+12
-435.014	1190.	0.00				
14.9600	4.5917	-5031936.	-62094.	-0.00309	3650.	1.20E+12
-436.172	1203.	0.00				
15.0960	4.5866	-5133854.	-62807.	-0.00310	3724.	1.20E+12
-437.310	1217.	0.00				
15.2320	4.5816	-5236938.	-63521.	-0.00311	3798.	1.20E+12
-438.427	1230.	0.00				
15.3680	4.5765	-5341188.	-64238.	-0.00311	3874.	1.20E+12
-439.523	1244.	0.00				
15.5040	4.5714	-5446610.	-64956.	-0.00312	3950.	1.20E+12
-440.598	1258.	0.00				
15.6400	4.5663	-5553204.	-65676.	-0.00313	4028.	1.20E+12
-441.650	1273.	0.00				
15.7760	4.5612	-5660976.	-66397.	-0.00313	4106.	1.20E+12
-442.681	1287.	0.00				
15.9120	4.5561	-5769926.	-67121.	-0.00314	4185.	1.20E+12
-443.688	1302.	0.00				
16.0480	4.5510	-5880058.	-67846.	-0.00315	4265.	1.20E+12
-444.672	1317.	0.00				
16.1840	4.5458	-5991374.	-68572.	-0.00316	4345.	1.20E+12
-445.633	1332.	0.00				
16.3200	4.5407	-6103877.	-69300.	-0.00317	4427.	1.20E+12
-446.569	1348.	0.00				
16.4560	4.5355	-6217570.	-70030.	-0.00318	4510.	1.20E+12
-447.481	1364.	0.00				
16.5920	4.5303	-6332454.	-70761.	-0.00318	4593.	1.20E+12
-448.367	1380.	0.00				
16.7280	4.5251	-6448533.	-71493.	-0.00319	4677.	1.20E+12
-449.227	1396.	0.00				
16.8640	4.5199	-6565808.	-72227.	-0.00320	4762.	1.20E+12
-450.061	1413.	0.00				
17.0000	4.5146	-6684282.	-72962.	-0.00321	4848.	1.20E+12
-450.868	1430.	0.00				
17.1360	4.5094	-6803957.	-73699.	-0.00322	4935.	1.20E+12
-451.648	1447.	0.00				
17.2720	4.5041	-6924834.	-74436.	-0.00323	5022.	1.20E+12
-452.399	1465.	0.00				
17.4080	4.4989	-7046917.	-75175.	-0.00324	5111.	1.20E+12
-453.122	1482.	0.00				
17.5440	4.4936	-7170206.	-75915.	-0.00325	5200.	1.20E+12

-453.815	1501.	0.00				
17.6800	4.4883	-7294704.	-76656.	-0.00326	5291.	1.20E+12
-454.478	1519.	0.00				
17.8160	4.4829	-7420413.	-77399.	-0.00327	5382.	1.20E+12
-455.110	1538.	0.00				
17.9520	4.4776	-7547334.	-78142.	-0.00328	5474.	1.20E+12
-455.711	1557.	0.00				
18.0880	4.4722	-7675468.	-78886.	-0.00329	5567.	1.20E+12
-456.279	1577.	0.00				
18.2240	4.4669	-7804818.	-79631.	-0.00330	5661.	1.20E+12
-456.815	1597.	0.00				
18.3600	4.4615	-7935384.	-80377.	-0.00331	5755.	1.20E+12
-457.317	1617.	0.00				
18.4960	4.4561	-8067169.	-81124.	-0.00332	5851.	1.20E+12
-457.784	1638.	0.00				
18.6320	4.4506	-8200172.	-81871.	-0.00333	5947.	1.20E+12
-458.216	1659.	0.00				
18.7680	4.4452	-8334396.	-82619.	-0.00334	6045.	1.20E+12
-458.611	1681.	0.00				
18.9040	4.4397	-8469842.	-83368.	-0.00335	6143.	1.20E+12
-458.969	1703.	0.00				
19.0400	4.4342	-8606510.	-84117.	-0.00337	6242.	1.20E+12
-459.289	1726.	0.00				
19.1760	4.4287	-8744401.	-84867.	-0.00338	6342.	1.20E+12
-459.570	1749.	0.00				
19.3120	4.4232	-8883517.	-85617.	-0.00339	6443.	1.20E+12
-459.810	1773.	0.00				
19.4480	4.4177	-9023857.	-86368.	-0.00340	6545.	1.20E+12
-460.010	1797.	0.00				
19.5840	4.4121	-9165422.	-87119.	-0.00341	6648.	1.20E+12
-460.167	1822.	0.00				
19.7200	4.4065	-9308213.	-87870.	-0.00343	6751.	1.20E+12
-460.281	1848.	0.00				
19.8560	4.4009	-9452230.	-88621.	-0.00344	6856.	1.20E+12
-460.350	1874.	0.00				
19.9920	4.3953	-9597473.	-89373.	-0.00345	6961.	1.20E+12
-460.373	1901.	0.00				
20.1280	4.3896	-9743942.	-90124.	-0.00347	7067.	1.20E+12
-460.349	1928.	0.00				
20.2640	4.3840	-9891637.	-90875.	-0.00348	7174.	1.20E+12
-460.276	1956.	0.00				
20.4000	4.3783	-1.00E+07	-91626.	-0.00349	7282.	1.20E+12
-460.154	1985.	0.00				
20.5360	4.3726	-1.02E+07	-92377.	-0.00351	7391.	1.20E+12
-459.980	2015.	0.00				
20.6720	4.3668	-1.03E+07	-93127.	-0.00352	7501.	1.20E+12
-459.754	2045.	0.00				
20.8080	4.3611	-1.05E+07	-93878.	-0.00353	7612.	1.20E+12
-459.473	2077.	0.00				
20.9440	4.3553	-1.06E+07	-94627.	-0.00355	7723.	1.20E+12

-459.136	2109.	0.00				
21.0800	4.3495	-1.08E+07	-95376.	-0.00356	7836.	1.20E+12
-458.741	2142.	0.00				
21.2160	4.3437	-1.10E+07	-96124.	-0.00358	7949.	1.20E+12
-458.287	2176.	0.00				
21.3520	4.3378	-1.11E+07	-96872.	-0.00359	8063.	1.20E+12
-457.770	2211.	0.00				
21.4880	4.3320	-1.13E+07	-97619.	-0.00361	8178.	1.20E+12
-457.191	2248.	0.00				
21.6240	4.3261	-1.14E+07	-98364.	-0.00362	8294.	1.20E+12
-456.546	2285.	0.00				
21.7600	4.3201	-1.16E+07	-99109.	-0.00364	8411.	1.20E+12
-455.832	2324.	0.00				
21.8960	4.3142	-1.18E+07	-99852.	-0.00366	8529.	1.20E+12
-455.049	2364.	0.00				
22.0320	4.3082	-1.19E+07	-100594.	-0.00367	8648.	1.20E+12
-454.193	2405.	0.00				
22.1680	4.3022	-1.21E+07	-101334.	-0.00369	8767.	1.20E+12
-453.262	2448.	0.00				
22.3040	4.2962	-1.23E+07	-102073.	-0.00370	8887.	1.20E+12
-452.253	2492.	0.00				
22.4400	4.2901	-1.24E+07	-102810.	-0.00372	9009.	1.20E+12
-451.162	2538.	0.00				
22.5760	4.2840	-1.26E+07	-103546.	-0.00374	9131.	1.20E+12
-449.988	2586.	0.00				
22.7120	4.2779	-1.28E+07	-104279.	-0.00376	9254.	1.20E+12
-448.727	2635.	0.00				
22.8480	4.2718	-1.29E+07	-105010.	-0.00377	9378.	1.20E+12
-447.375	2687.	0.00				
22.9840	4.2656	-1.31E+07	-105739.	-0.00379	9502.	1.20E+12
-445.929	2740.	0.00				
23.1200	4.2594	-1.33E+07	-106466.	-0.00381	9628.	1.20E+12
-444.384	2796.	0.00				
23.2560	4.2532	-1.34E+07	-107190.	-0.00383	9754.	1.20E+12
-442.737	2854.	0.00				
23.3920	4.2469	-1.36E+07	-107911.	-0.00385	9882.	1.20E+12
-440.983	2915.	0.00				
23.5280	4.2406	-1.38E+07	-108629.	-0.00386	10010.	1.20E+12
-439.118	2979.	0.00				
23.6640	4.2343	-1.40E+07	-109344.	-0.00388	10139.	1.20E+12
-437.135	3045.	0.00				
23.8000	4.2279	-1.42E+07	-110056.	-0.00390	10269.	1.20E+12
-435.030	3115.	0.00				
23.9360	4.2215	-1.43E+07	-110764.	-0.00392	10399.	1.20E+12
-432.797	3188.	0.00				
24.0720	4.2151	-1.45E+07	-111468.	-0.00394	10531.	1.20E+12
-430.429	3265.	0.00				
24.2080	4.2087	-1.47E+07	-112169.	-0.00396	10663.	1.20E+12
-427.920	3347.	0.00				
24.3440	4.2022	-1.49E+07	-112865.	-0.00398	10797.	1.20E+12

-425.261	3432.	0.00				
24.4800	4.1957	-1.51E+07	-113557.	-0.00400	10931.	1.20E+12
-422.445	3523.	0.00				
24.6160	4.1891	-1.53E+07	-114244.	-0.00402	11065.	1.20E+12
-419.461	3619.	0.00				
24.7520	4.1826	-1.54E+07	-114926.	-0.00404	11201.	1.20E+12
-416.302	3722.	0.00				
24.8880	4.1759	-1.56E+07	-115602.	-0.00406	11337.	1.20E+12
-412.955	3830.	0.00				
25.0240	4.1693	-1.58E+07	-116273.	-0.00409	11475.	1.20E+12
-409.409	3947.	0.00				
25.1600	4.1626	-1.60E+07	-116938.	-0.00411	11613.	1.20E+12
-405.649	4071.	0.00				
25.2960	4.1559	-1.62E+07	-117597.	-0.00413	11752.	1.20E+12
-401.663	4205.	0.00				
25.4320	4.1491	-1.64E+07	-118249.	-0.00415	11891.	1.20E+12
-397.432	4349.	0.00				
25.5680	4.1423	-1.66E+07	-118894.	-0.00417	12031.	1.20E+12
-392.938	4505.	0.00				
25.7040	4.1355	-1.68E+07	-119531.	-0.00420	12173.	1.20E+12
-388.159	4675.	0.00				
25.8400	4.1286	-1.70E+07	-120161.	-0.00422	12314.	1.20E+12
-383.073	4860.	0.00				
25.9760	4.1217	-1.72E+07	-120782.	-0.00424	12457.	1.20E+12
-377.650	5063.	0.00				
26.1120	4.1148	-1.74E+07	-121393.	-0.00427	12600.	1.20E+12
-371.858	5286.	0.00				
26.2480	4.1078	-1.76E+07	-121995.	-0.00429	12744.	1.20E+12
-365.660	5535.	0.00				
26.3840	4.1008	-1.78E+07	-122586.	-0.00431	12889.	1.20E+12
-359.012	5813.	0.00				
26.5200	4.0937	-1.80E+07	-123166.	-0.00434	13035.	1.20E+12
-351.861	6126.	0.00				
26.6560	4.0866	-1.82E+07	-123734.	-0.00436	13181.	1.20E+12
-344.141	6483.	0.00				
26.7920	4.0795	-1.84E+07	-124289.	-0.00439	13328.	1.20E+12
-335.776	6893.	0.00				
26.9280	4.0723	-1.86E+07	-124830.	-0.00441	13475.	1.20E+12
-326.665	7372.	0.00				
27.0640	4.0651	-1.88E+07	-125355.	-0.00444	13623.	1.20E+12
-316.684	7940.	0.00				
27.2000	4.0578	-1.90E+07	-125862.	-0.00446	13772.	1.20E+12
-305.665	8626.	0.00				
27.3360	4.0505	-1.92E+07	-126351.	-0.00449	13921.	1.20E+12
-293.386	9477.	0.00				
27.4720	4.0432	-1.94E+07	-126819.	-0.00452	14071.	1.20E+12
-279.529	10566.	0.00				
27.6080	4.0358	-1.96E+07	-127262.	-0.00454	14221.	1.20E+12
-263.622	12023.	0.00				
27.7440	4.0284	-1.98E+07	-127677.	-0.00457	14372.	1.20E+12

-244.907	14098.	0.00				
27.8800	4.0209	-2.00E+07	-128058.	-0.00460	14523.	1.20E+12
-222.024	17361.	0.00				
28.0160	4.0133	-2.02E+07	-128396.	-0.00462	14675.	1.20E+12
-192.057	23483.	0.00				
28.1520	4.0058	-2.04E+07	-128672.	-0.00465	14827.	1.20E+12
-145.903	41202.	0.00				
28.2880	3.9982	-2.07E+07	-128709.	-0.00468	14980.	1.20E+12
99.7550	88735.	0.00				
28.4240	3.9905	-2.09E+07	-128486.	-0.00471	15132.	1.20E+12
173.4033	29807.	0.00				
28.5600	3.9828	-2.11E+07	-128172.	-0.00474	15284.	1.20E+12
212.2405	20138.	0.00				
28.6960	3.9750	-2.13E+07	-127802.	-0.00476	15436.	1.20E+12
241.2144	15776.	0.00				
28.8320	3.9672	-2.15E+07	-127389.	-0.00479	15587.	1.20E+12
265.1418	13211.	0.00				
28.9680	3.9594	-2.17E+07	-126939.	-0.00482	15737.	1.20E+12
285.9321	11493.	0.00				
29.1040	3.9515	-2.19E+07	-126457.	-0.00485	15887.	1.20E+12
304.5600	10249.	0.00				
29.2400	3.9436	-2.21E+07	-125946.	-0.00488	16036.	1.20E+12
321.5975	9299.	0.00				
29.3760	3.9356	-2.23E+07	-125408.	-0.00491	16185.	1.20E+12
337.4120	8546.	0.00				
29.5120	3.9275	-2.25E+07	-124846.	-0.00494	16333.	1.20E+12
352.2549	7932.	0.00				
29.6480	3.9194	-2.27E+07	-124259.	-0.00497	16481.	1.20E+12
366.3066	7420.	0.00				
29.7840	3.9113	-2.29E+07	-123650.	-0.00501	16628.	1.20E+12
379.7013	6985.	0.00				
29.9200	3.9031	-2.31E+07	-123020.	-0.00504	16774.	1.20E+12
392.5417	6611.	0.00				
30.0560	3.8948	-2.33E+07	-122370.	-0.00507	16919.	1.20E+12
404.9085	6284.	0.00				
30.1920	3.8865	-2.35E+07	-121699.	-0.00510	17063.	1.20E+12
416.8661	5997.	0.00				
30.3280	3.8782	-2.37E+07	-121009.	-0.00513	17207.	1.20E+12
428.4672	5741.	0.00				
30.4640	3.8698	-2.39E+07	-120301.	-0.00516	17350.	1.20E+12
439.7550	5512.	0.00				
30.6000	3.8613	-2.41E+07	-119574.	-0.00520	17492.	1.20E+12
450.7657	5305.	0.00				
30.7360	3.8528	-2.43E+07	-118830.	-0.00523	17633.	1.20E+12
461.5302	5118.	0.00				
30.8720	3.8443	-2.45E+07	-118068.	-0.00526	17773.	1.20E+12
472.0743	4947.	0.00				
31.0080	3.8356	-2.47E+07	-117289.	-0.00530	17912.	1.20E+12
482.4208	4790.	0.00				
31.1440	3.8270	-2.49E+07	-116493.	-0.00533	18051.	1.20E+12

492.5890	4646.	0.00				
31.2800	3.8182	-2.51E+07	-115681.	-0.00536	18188.	1.20E+12
502.5960	4513.	0.00				
31.4160	3.8095	-2.53E+07	-114853.	-0.00540	18324.	1.20E+12
512.4569	4389.	0.00				
31.5520	3.8006	-2.55E+07	-114009.	-0.00543	18460.	1.20E+12
522.1848	4274.	0.00				
31.6880	3.7917	-2.56E+07	-113149.	-0.00547	18594.	1.20E+12
531.7916	4167.	0.00				
31.8240	3.7828	-2.58E+07	-112273.	-0.00550	18728.	1.20E+12
541.2877	4067.	0.00				
31.9600	3.7738	-2.60E+07	-111382.	-0.00554	18860.	1.20E+12
550.6826	3973.	0.00				
32.0960	3.7647	-2.62E+07	-110476.	-0.00557	18991.	1.20E+12
559.9848	3884.	0.00				
32.2320	3.7556	-2.64E+07	-109554.	-0.00561	19122.	1.20E+12
569.2019	3800.	0.00				
32.3680	3.7464	-2.65E+07	-108618.	-0.00565	19251.	1.20E+12
578.3409	3722.	0.00				
32.5040	3.7371	-2.67E+07	-107667.	-0.00568	19379.	1.20E+12
587.4082	3647.	0.00				
32.6400	3.7278	-2.69E+07	-106701.	-0.00572	19506.	1.20E+12
596.4095	3576.	0.00				
32.7760	3.7185	-2.71E+07	-105720.	-0.00576	19631.	1.20E+12
605.3501	3509.	0.00				
32.9120	3.7091	-2.72E+07	-104725.	-0.00579	19756.	1.20E+12
614.2349	3445.	0.00				
33.0480	3.6996	-2.74E+07	-103715.	-0.00583	19879.	1.20E+12
623.0684	3385.	0.00				
33.1840	3.6900	-2.76E+07	-102691.	-0.00587	20002.	1.20E+12
631.8546	3327.	0.00				
33.3200	3.6804	-2.77E+07	-101653.	-0.00590	20122.	1.20E+12
640.5974	3271.	0.00				
33.4560	3.6708	-2.79E+07	-100600.	-0.00594	20242.	1.20E+12
649.3004	3218.	0.00				
33.5920	3.6610	-2.81E+07	-99534.	-0.00598	20361.	1.20E+12
657.9668	3168.	0.00				
33.7280	3.6512	-2.82E+07	-98453.	-0.00602	20478.	1.20E+12
666.5996	3119.	0.00				
33.8640	3.6414	-2.84E+07	-97358.	-0.00606	20594.	1.20E+12
675.2017	3073.	0.00				
34.0000	3.6315	-2.86E+07	-96249.	-0.00610	20708.	1.20E+12
683.7758	3028.	0.00				
34.1360	3.6215	-2.87E+07	-95126.	-0.00613	20822.	1.20E+12
692.3243	2985.	0.00				
34.2720	3.6114	-2.89E+07	-93989.	-0.00617	20933.	1.20E+12
700.8496	2944.	0.00				
34.4080	3.6013	-2.90E+07	-92838.	-0.00621	21044.	1.20E+12
709.3537	2904.	0.00				
34.5440	3.5912	-2.92E+07	-91674.	-0.00625	21153.	1.20E+12

717.8389	2865.	0.00				
34.6800	3.5809	-2.93E+07	-90495.	-0.00629	21261.	1.20E+12
726.3070	2828.	0.00				
34.8160	3.5706	-2.95E+07	-89303.	-0.00633	21367.	1.20E+12
734.7597	2793.	0.00				
34.9520	3.5603	-2.96E+07	-88097.	-0.00637	21472.	1.20E+12
743.1989	2758.	0.00				
35.0880	3.5498	-2.97E+07	-86877.	-0.00641	21576.	1.20E+12
751.6260	2725.	0.00				
35.2240	3.5393	-2.99E+07	-85644.	-0.00645	21678.	1.20E+12
760.0427	2693.	0.00				
35.3600	3.5288	-3.00E+07	-84397.	-0.00649	21779.	1.20E+12
768.4504	2661.	0.00				
35.4960	3.5181	-3.02E+07	-83136.	-0.00654	21878.	1.20E+12
776.8503	2631.	0.00				
35.6320	3.5074	-3.03E+07	-81861.	-0.00658	21976.	1.20E+12
785.2439	2602.	0.00				
35.7680	3.4967	-3.04E+07	-80573.	-0.00662	22072.	1.20E+12
793.6323	2573.	0.00				
35.9040	3.4858	-3.06E+07	-79271.	-0.00666	22166.	1.20E+12
802.0167	2546.	0.00				
36.0400	3.4749	-3.07E+07	-77955.	-0.00670	22259.	1.20E+12
810.3982	2519.	0.00				
36.1760	3.4639	-3.08E+07	-76625.	-0.00674	22351.	1.20E+12
818.7779	2493.	0.00				
36.3120	3.4529	-3.09E+07	-75282.	-0.00679	22441.	1.20E+12
827.1566	2467.	0.00				
36.4480	3.4418	-3.11E+07	-73927.	-0.00683	22529.	1.20E+12
833.8974	2438.	0.00				
36.5840	3.4306	-3.12E+07	-72561.	-0.00687	22616.	1.20E+12
840.4344	2409.	0.00				
36.7200	3.4194	-3.13E+07	-71184.	-0.00691	22701.	1.20E+12
846.9462	2381.	0.00				
36.8560	3.4081	-3.14E+07	-69796.	-0.00695	22784.	1.20E+12
853.4339	2353.	0.00				
36.9920	3.3967	-3.15E+07	-68398.	-0.00700	22866.	1.20E+12
859.8985	2326.	0.00				
37.1280	3.3852	-3.16E+07	-66990.	-0.00704	22946.	1.20E+12
866.3408	2300.	0.00				
37.2640	3.3737	-3.17E+07	-65570.	-0.00708	23025.	1.20E+12
872.7617	2274.	0.00				
37.4000	3.3621	-3.19E+07	-64141.	-0.00713	23101.	1.20E+12
879.1622	2249.	0.00				
37.5360	3.3504	-3.20E+07	-62701.	-0.00717	23177.	1.20E+12
885.5428	2225.	0.00				
37.6720	3.3387	-3.21E+07	-61251.	-0.00721	23250.	1.20E+12
891.9045	2201.	0.00				
37.8080	3.3269	-3.22E+07	-59790.	-0.00726	23322.	1.20E+12
898.2480	2178.	0.00				
37.9440	3.3150	-3.23E+07	-58319.	-0.00730	23391.	1.20E+12

904.5739	2155.	0.00				
38.0800	3.3031	-3.23E+07	-56837.	-0.00735	23460.	1.20E+12
910.8829	2133.	0.00				
38.2160	3.2910	-3.24E+07	-55346.	-0.00739	23526.	1.20E+12
917.1757	2111.	0.00				
38.3520	3.2789	-3.25E+07	-53844.	-0.00743	23591.	1.20E+12
923.4529	2090.	0.00				
38.4880	3.2668	-3.26E+07	-52331.	-0.00748	23653.	1.20E+12
929.7150	2069.	0.00				
38.6240	3.2545	-3.27E+07	-50809.	-0.00752	23715.	1.20E+12
935.9627	2049.	0.00				
38.7600	3.2422	-3.28E+07	-49276.	-0.00757	23774.	1.20E+12
942.1964	2029.	0.00				
38.8960	3.2298	-3.29E+07	-47734.	-0.00761	23831.	1.20E+12
948.4168	2010.	0.00				
39.0320	3.2174	-3.29E+07	-46181.	-0.00766	23887.	1.20E+12
954.6243	1991.	0.00				
39.1680	3.2048	-3.30E+07	-44618.	-0.00770	23940.	1.20E+12
960.8193	1972.	0.00				
39.3040	3.1922	-3.31E+07	-43045.	-0.00775	23992.	1.20E+12
967.0024	1954.	0.00				
39.4400	3.1796	-3.31E+07	-41462.	-0.00779	24042.	1.20E+12
973.1740	1936.	0.00				
39.5760	3.1668	-3.32E+07	-39868.	-0.00784	24091.	1.20E+12
979.3345	1918.	0.00				
39.7120	3.1540	-3.33E+07	-38265.	-0.00788	24137.	1.20E+12
985.4844	1901.	0.00				
39.8480	3.1411	-3.33E+07	-36652.	-0.00793	24181.	1.20E+12
991.6240	1884.	0.00				
39.9840	3.1281	-3.34E+07	-35028.	-0.00797	24224.	1.20E+12
997.7536	1868.	0.00				
40.1200	3.1151	-3.35E+07	-33395.	-0.00802	24264.	1.20E+12
1004.	1851.	0.00				
40.2560	3.1019	-3.35E+07	-31752.	-0.00806	24303.	1.20E+12
1010.	1835.	0.00				
40.3920	3.0887	-3.36E+07	-30098.	-0.00811	24339.	1.20E+12
1016.	1820.	0.00				
40.5280	3.0755	-3.36E+07	-28435.	-0.00815	24374.	1.20E+12
1022.	1804.	0.00				
40.6640	3.0621	-3.37E+07	-26762.	-0.00820	24407.	1.20E+12
1028.	1789.	0.00				
40.8000	3.0487	-3.37E+07	-25079.	-0.00825	24437.	1.20E+12
1034.	1774.	0.00				
40.9360	3.0352	-3.37E+07	-23386.	-0.00829	24466.	1.20E+12
1040.	1760.	0.00				
41.0720	3.0216	-3.38E+07	-21683.	-0.00834	24493.	1.20E+12
1046.	1746.	0.00				
41.2080	3.0080	-3.38E+07	-19970.	-0.00838	24517.	1.20E+12
1053.	1732.	0.00				
41.3440	2.9943	-3.38E+07	-18248.	-0.00843	24540.	1.20E+12

1059.	1718.	0.00				
41.4800	2.9805	-3.39E+07	-16515.	-0.00848	24560.	1.20E+12
1065.	1704.	0.00				
41.6160	2.9666	-3.39E+07	-14773.	-0.00852	24579.	1.20E+12
1071.	1691.	0.00				
41.7520	2.9527	-3.39E+07	-13020.	-0.00857	24595.	1.20E+12
1077.	1678.	0.00				
41.8880	2.9386	-3.39E+07	-11258.	-0.00861	24610.	1.20E+12
1083.	1665.	0.00				
42.0240	2.9246	-3.39E+07	-9486.	-0.00866	24622.	1.20E+12
1089.	1652.	0.00				
42.1600	2.9104	-3.40E+07	-7705.	-0.00871	24632.	1.20E+12
1095.	1640.	0.00				
42.2960	2.8961	-3.40E+07	-5913.	-0.00875	24640.	1.20E+12
1101.	1627.	0.00				
42.4320	2.8818	-3.40E+07	-4112.	-0.00880	24646.	1.20E+12
1107.	1615.	0.00				
42.5680	2.8674	-3.40E+07	-2301.	-0.00885	24650.	1.20E+12
1113.	1603.	0.00				
42.7040	2.8529	-3.40E+07	-479.874	-0.00889	24652.	1.20E+12
1119.	1592.	0.00				
42.8400	2.8384	-3.40E+07	1351.	-0.00894	24651.	1.20E+12
1125.	1580.	0.00				
42.9760	2.8238	-3.40E+07	3191.	-0.00898	24648.	1.20E+12
1131.	1569.	0.00				
43.1120	2.8091	-3.40E+07	5041.	-0.00903	24644.	1.20E+12
1137.	1558.	0.00				
43.2480	2.7943	-3.40E+07	6901.	-0.00908	24637.	1.20E+12
1143.	1547.	0.00				
43.3840	2.7794	-3.40E+07	8771.	-0.00912	24627.	1.20E+12
1149.	1536.	0.00				
43.5200	2.7645	-3.39E+07	10651.	-0.00917	24616.	1.20E+12
1155.	1525.	0.00				
43.6560	2.7495	-3.39E+07	12540.	-0.00921	24602.	1.20E+12
1161.	1515.	0.00				
43.7920	2.7344	-3.39E+07	14439.	-0.00926	24586.	1.20E+12
1167.	1504.	0.00				
43.9280	2.7193	-3.39E+07	16347.	-0.00931	24568.	1.20E+12
1172.	1494.	0.00				
44.0640	2.7041	-3.38E+07	18266.	-0.00935	24547.	1.20E+12
1178.	1484.	0.00				
44.2000	2.6888	-3.38E+07	20194.	-0.00940	24525.	1.20E+12
1184.	1474.	0.00				
44.3360	2.6734	-3.38E+07	22132.	-0.00945	24500.	1.20E+12
1190.	1464.	0.00				
44.4720	2.6579	-3.37E+07	24079.	-0.00949	24472.	1.20E+12
1196.	1455.	0.00				
44.6080	2.6424	-3.37E+07	26036.	-0.00954	24443.	1.20E+12
1202.	1445.	0.00				
44.7440	2.6268	-3.37E+07	28003.	-0.00958	24411.	1.20E+12

1208.	1436.	0.00				
44.8800	2.6111	-3.36E+07	29980.	-0.00963	24376.	1.20E+12
1214.	1427.	0.00				
45.0160	2.5954	-3.36E+07	31966.	-0.00967	24340.	1.20E+12
1220.	1418.	0.00				
45.1520	2.5795	-3.35E+07	33962.	-0.00972	24301.	1.20E+12
1226.	1409.	0.00				
45.2880	2.5636	-3.34E+07	35968.	-0.00977	24259.	1.20E+12
1232.	1400.	0.00				
45.4240	2.5477	-3.34E+07	37983.	-0.00981	24215.	1.20E+12
1238.	1391.	0.00				
45.5600	2.5316	-3.33E+07	40008.	-0.00986	24169.	1.20E+12
1244.	1382.	0.00				
45.6960	2.5155	-3.33E+07	42043.	-0.00990	24121.	1.20E+12
1250.	1374.	0.00				
45.8320	2.4993	-3.32E+07	44087.	-0.00995	24070.	1.20E+12
1256.	1365.	0.00				
45.9680	2.4830	-3.31E+07	46141.	-0.00999	24016.	1.20E+12
1262.	1357.	0.00				
46.1040	2.4667	-3.30E+07	48205.	-0.01004	23961.	1.20E+12
1267.	1349.	0.00				
46.2400	2.4503	-3.30E+07	50278.	-0.01008	23902.	1.20E+12
1273.	1341.	0.00				
46.3760	2.4338	-3.29E+07	52361.	-0.01013	23842.	1.20E+12
1279.	1333.	0.00				
46.5120	2.4172	-3.28E+07	54453.	-0.01017	23778.	1.20E+12
1285.	1325.	0.00				
46.6480	2.4006	-3.27E+07	56556.	-0.01022	23713.	1.20E+12
1291.	1317.	0.00				
46.7840	2.3839	-3.26E+07	58668.	-0.01026	23644.	1.20E+12
1297.	1310.	0.00				
46.9200	2.3671	-3.25E+07	60789.	-0.01030	23574.	1.20E+12
1303.	1302.	0.00				
47.0560	2.3502	-3.24E+07	62920.	-0.01035	23501.	1.20E+12
1309.	1295.	0.00				
47.1920	2.3333	-3.23E+07	65061.	-0.01039	23425.	1.20E+12
1315.	1287.	0.00				
47.3280	2.3163	-3.22E+07	67212.	-0.01044	23346.	1.20E+12
1321.	1280.	0.00				
47.4640	2.2993	-3.21E+07	69372.	-0.01048	23266.	1.20E+12
1327.	1273.	0.00				
47.6000	2.2821	-3.20E+07	71541.	-0.01052	23182.	1.20E+12
1332.	1266.	0.00				
47.7360	2.2649	-3.18E+07	73721.	-0.01057	23096.	1.20E+12
1338.	1259.	0.00				
47.8720	2.2476	-3.17E+07	75909.	-0.01061	23008.	1.20E+12
1344.	1252.	0.00				
48.0080	2.2303	-3.16E+07	82723.	-0.01065	22917.	1.20E+12
7006.	6461.	0.00				
48.1440	2.2129	-3.15E+07	94257.	-0.01070	22812.	1.20E+12

7128.	6510.	0.00				
48.2800	2.1954	-3.13E+07	105992.	-0.01074	22693.	1.20E+12
7252.	6558.	0.00				
48.4160	2.1778	-3.11E+07	117930.	-0.01078	22561.	1.20E+12
7378.	6608.	0.00				
48.5520	2.1602	-3.09E+07	130074.	-0.01082	22414.	1.20E+12
7505.	6657.	0.00				
48.6880	2.1425	-3.07E+07	142426.	-0.01087	22253.	1.20E+12
7633.	6706.	0.00				
48.8240	2.1247	-3.04E+07	154990.	-0.01091	22077.	1.20E+12
7763.	6756.	0.00				
48.9600	2.1069	-3.02E+07	167768.	-0.01095	21886.	1.20E+12
7895.	6806.	0.00				
49.0960	2.0890	-2.99E+07	180762.	-0.01099	21680.	1.20E+12
8029.	6857.	0.00				
49.2320	2.0710	-2.96E+07	193976.	-0.01103	21458.	1.20E+12
8164.	6907.	0.00				
49.3680	2.0530	-2.93E+07	207412.	-0.01107	21221.	1.20E+12
8301.	6958.	0.00				
49.5040	2.0349	-2.89E+07	221073.	-0.01111	20967.	1.20E+12
8440.	7009.	0.00				
49.6400	2.0167	-2.85E+07	234962.	-0.01115	20697.	1.20E+12
8581.	7061.	0.00				
49.7760	1.9985	-2.81E+07	249081.	-0.01119	20411.	1.20E+12
8723.	7112.	0.00				
49.9120	1.9802	-2.77E+07	263434.	-0.01122	20108.	1.20E+12
8867.	7164.	0.00				
50.0480	1.9618	-2.73E+07	278024.	-0.01126	19787.	1.20E+12
9012.	7216.	0.00				
50.1840	1.9434	-2.68E+07	292852.	-0.01130	19450.	1.20E+12
9160.	7269.	0.00				
50.3200	1.9250	-2.63E+07	307923.	-0.01134	19094.	1.20E+12
9309.	7322.	0.00				
50.4560	1.9064	-2.58E+07	323239.	-0.01137	18721.	1.20E+12
9460.	7375.	0.00				
50.5920	1.8879	-2.53E+07	338803.	-0.01141	18329.	1.20E+12
9613.	7428.	0.00				
50.7280	1.8692	-2.47E+07	354617.	-0.01144	17919.	1.20E+12
9768.	7481.	0.00				
50.8640	1.8505	-2.41E+07	370686.	-0.01147	17489.	1.20E+12
9924.	7535.	0.00				
51.0000	1.8318	-2.35E+07	387011.	-0.01151	17041.	1.20E+12
10082.	7589.	0.00				
51.1360	1.8130	-2.29E+07	403596.	-0.01154	16573.	1.20E+12
10243.	7643.	0.00				
51.2720	1.7941	-2.22E+07	420444.	-0.01157	16086.	1.20E+12
10405.	7698.	0.00				
51.4080	1.7752	-2.15E+07	437558.	-0.01160	15578.	1.20E+12
10568.	7752.	0.00				
51.5440	1.7563	-2.07E+07	454763.	-0.01163	15050.	1.20E+12

10516.	7854.	0.00				
51.6800	1.7373	-2.00E+07	471506.	-0.01165	14501.	1.20E+12
10002.	8070.	0.00				
51.8160	1.7182	-1.92E+07	487400.	-0.01168	13933.	1.20E+12
9477.	8313.	0.00				
51.9520	1.6991	-1.84E+07	502431.	-0.01171	13347.	1.20E+12
8942.	8594.	0.00				
52.0880	1.6800	-1.76E+07	516579.	-0.01173	12744.	1.20E+12
8397.	8922.	0.00				
52.2240	1.6608	-1.67E+07	529829.	-0.01175	12124.	1.20E+12
7841.	9314.	0.00				
52.3600	1.6416	-1.58E+07	542163.	-0.01178	11490.	1.20E+12
7274.	9798.	0.00				
52.4960	1.6224	-1.49E+07	553564.	-0.01180	10841.	1.20E+12
6697.	10414.	0.00				
52.6320	1.6031	-1.40E+07	564006.	-0.01182	10179.	1.20E+12
6099.	11215.	0.00				
52.7680	1.5838	-1.31E+07	573424.	-0.01183	9506.	1.20E+12
5442.	12242.	0.00				
52.9040	1.5645	-1.22E+07	581706.	-0.01185	8822.	1.20E+12
4707.	13634.	0.00				
53.0400	1.5452	-1.12E+07	588700.	-0.01187	8129.	1.20E+12
3864.	15705.	0.00				
53.1760	1.5258	-1.02E+07	594175.	-0.01188	7428.	1.20E+12
2847.	19393.	0.00				
53.3120	1.5064	-9268212.	597679.	-0.01190	6722.	1.20E+12
1447.	30422.	0.00				
53.4480	1.4870	-8290873.	597608.	-0.01191	6013.	1.20E+12
-1534.	29706.	0.00				
53.5840	1.4675	-7317621.	593934.	-0.01192	5307.	1.20E+12
-2969.	19680.	0.00				
53.7200	1.4481	-6352274.	588190.	-0.01193	4607.	1.20E+12
-4070.	16279.	0.00				
53.8560	1.4286	-5397769.	580765.	-0.01194	3915.	1.20E+12
-5029.	14400.	0.00				
53.9920	1.4091	-4456657.	571845.	-0.01194	3232.	1.20E+12
-5903.	13165.	0.00				
54.1280	1.3896	-3531267.	561544.	-0.01195	2561.	1.20E+12
-6721.	12275.	0.00				
54.2640	1.3701	-2623779.	549939.	-0.01195	1903.	1.20E+12
-7501.	11598.	0.00				
54.4000	1.3506	-1736268.	537059.	-0.01195	1259.	1.20E+12
-8282.	11105.	0.00				
54.5360	1.3311	-870817.	523070.	-0.01196	631.5919	1.20E+12
-8861.	10864.	0.00				
54.6720	1.3116	-28966.	508622.	-0.01196	21.0086	1.20E+12
-8845.	11006.	0.00				
54.8080	1.2920	789326.	494201.	-0.01196	572.4880	1.20E+12
-8828.	11151.	0.00				
54.9440	1.2725	1584105.	479808.	-0.01196	1149.	1.20E+12

-8810.	11299.	0.00				
55.0800	1.2530	2355419.	465445.	-0.01195	1708.	1.20E+12
-8791.	11450.	0.00				
55.2160	1.2335	3103319.	451115.	-0.01195	2251.	1.20E+12
-8771.	11604.	0.00				
55.3520	1.2140	3827859.	436819.	-0.01194	2776.	1.20E+12
-8749.	11761.	0.00				
55.4880	1.1945	4529096.	422559.	-0.01194	3285.	1.20E+12
-8727.	11922.	0.00				
55.6240	1.1751	5207091.	408337.	-0.01193	3777.	1.20E+12
-8703.	12087.	0.00				
55.7600	1.1556	5861907.	394154.	-0.01192	4252.	1.20E+12
-8678.	12255.	0.00				
55.8960	1.1361	6493610.	380013.	-0.01192	4710.	1.20E+12
-8652.	12428.	0.00				
56.0320	1.1167	7102270.	365916.	-0.01191	5151.	1.20E+12
-8625.	12604.	0.00				
56.1680	1.0973	7687958.	351863.	-0.01190	5576.	1.20E+12
-8596.	12785.	0.00				
56.3040	1.0779	8250752.	337858.	-0.01189	5984.	1.20E+12
-8567.	12971.	0.00				
56.4400	1.0585	8790728.	323902.	-0.01187	6376.	1.20E+12
-8536.	13161.	0.00				
56.5760	1.0391	9307969.	309997.	-0.01186	6751.	1.20E+12
-8504.	13357.	0.00				
56.7120	1.0198	9802560.	296145.	-0.01185	7110.	1.20E+12
-8471.	13557.	0.00				
56.8480	1.0004	1.03E+07	282347.	-0.01183	7452.	1.20E+12
-8437.	13764.	0.00				
56.9840	0.9811	1.07E+07	268607.	-0.01182	7778.	1.20E+12
-8402.	13975.	0.00				
57.1200	0.9619	1.12E+07	254926.	-0.01181	8088.	1.20E+12
-8364.	14192.	0.00				
57.2560	0.9426	1.16E+07	241307.	-0.01179	8382.	1.20E+12
-8325.	14413.	0.00				
57.3920	0.9234	1.19E+07	227755.	-0.01177	8659.	1.20E+12
-8283.	14640.	0.00				
57.5280	0.9042	1.23E+07	214272.	-0.01176	8921.	1.20E+12
-8240.	14873.	0.00				
57.6640	0.8850	1.26E+07	200862.	-0.01174	9166.	1.20E+12
-8194.	15111.	0.00				
57.8000	0.8658	1.30E+07	187528.	-0.01172	9396.	1.20E+12
-8146.	15355.	0.00				
57.9360	0.8467	1.33E+07	174274.	-0.01171	9610.	1.20E+12
-8096.	15605.	0.00				
58.0720	0.8276	1.35E+07	161103.	-0.01169	9809.	1.20E+12
-8044.	15862.	0.00				
58.2080	0.8086	1.38E+07	148019.	-0.01167	9992.	1.20E+12
-7990.	16126.	0.00				
58.3440	0.7896	1.40E+07	135026.	-0.01165	10159.	1.20E+12

-7933.	16397.	0.00				
58.4800	0.7706	1.42E+07	122128.	-0.01163	10311.	1.20E+12
-7874.	16676.	0.00				
58.6160	0.7516	1.44E+07	109328.	-0.01161	10448.	1.20E+12
-7812.	16963.	0.00				
58.7520	0.7327	1.46E+07	96631.	-0.01159	10570.	1.20E+12
-7748.	17259.	0.00				
58.8880	0.7138	1.47E+07	84041.	-0.01157	10677.	1.20E+12
-7681.	17563.	0.00				
59.0240	0.6949	1.48E+07	71562.	-0.01155	10769.	1.20E+12
-7612.	17877.	0.00				
59.1600	0.6761	1.50E+07	59199.	-0.01153	10847.	1.20E+12
-7540.	18201.	0.00				
59.2960	0.6572	1.50E+07	46955.	-0.01151	10909.	1.20E+12
-7465.	18535.	0.00				
59.4320	0.6385	1.51E+07	34836.	-0.01149	10958.	1.20E+12
-7387.	18881.	0.00				
59.5680	0.6197	1.52E+07	22847.	-0.01147	10992.	1.20E+12
-7306.	19239.	0.00				
59.7040	0.6010	1.52E+07	10991.	-0.01145	11012.	1.20E+12
-7222.	19610.	0.00				
59.8400	0.5824	1.52E+07	-724.247	-0.01143	11018.	1.20E+12
-7135.	19995.	0.00				
59.9760	0.5637	1.52E+07	-12295.	-0.01141	11010.	1.20E+12
-7045.	20395.	0.00				
60.1120	0.5451	1.52E+07	-23716.	-0.01139	10989.	1.20E+12
-6951.	20810.	0.00				
60.2480	0.5266	1.51E+07	-34981.	-0.01137	10954.	1.20E+12
-6854.	21243.	0.00				
60.3840	0.5080	1.50E+07	-46085.	-0.01135	10906.	1.20E+12
-6753.	21694.	0.00				
60.5200	0.4895	1.50E+07	-57021.	-0.01133	10845.	1.20E+12
-6649.	22165.	0.00				
60.6560	0.4711	1.49E+07	-67783.	-0.01131	10771.	1.20E+12
-6540.	22658.	0.00				
60.7920	0.4526	1.47E+07	-78364.	-0.01129	10684.	1.20E+12
-6427.	23174.	0.00				
60.9280	0.4342	1.46E+07	-88758.	-0.01127	10585.	1.20E+12
-6310.	23717.	0.00				
61.0640	0.4159	1.44E+07	-98957.	-0.01125	10474.	1.20E+12
-6189.	24287.	0.00				
61.2000	0.3975	1.43E+07	-108955.	-0.01123	10351.	1.20E+12
-6063.	24890.	0.00				
61.3360	0.3792	1.41E+07	-118742.	-0.01121	10216.	1.20E+12
-5932.	25527.	0.00				
61.4720	0.3610	1.39E+07	-128312.	-0.01119	10070.	1.20E+12
-5795.	26203.	0.00				
61.6080	0.3427	1.37E+07	-137654.	-0.01117	9913.	1.20E+12
-5654.	26922.	0.00				
61.7440	0.3245	1.34E+07	-146760.	-0.01115	9744.	1.20E+12

-5506.	27691.	0.00				
61.8800	0.3063	1.32E+07	-155620.	-0.01113	9565.	1.20E+12
-5352.	28514.	0.00				
62.0160	0.2882	1.29E+07	-164223.	-0.01111	9376.	1.20E+12
-5191.	29402.	0.00				
62.1520	0.2700	1.27E+07	-172559.	-0.01110	9176.	1.20E+12
-5024.	30362.	0.00				
62.2880	0.2519	1.24E+07	-180614.	-0.01108	8967.	1.20E+12
-4848.	31406.	0.00				
62.4240	0.2339	1.21E+07	-188377.	-0.01106	8749.	1.20E+12
-4665.	32551.	0.00				
62.5600	0.2158	1.17E+07	-195832.	-0.01105	8521.	1.20E+12
-4472.	33814.	0.00				
62.6960	0.1978	1.14E+07	-202965.	-0.01103	8285.	1.20E+12
-4269.	35220.	0.00				
62.8320	0.1798	1.11E+07	-209757.	-0.01102	8041.	1.20E+12
-4055.	36802.	0.00				
62.9680	0.1619	1.07E+07	-216190.	-0.01100	7789.	1.20E+12
-3829.	38604.	0.00				
63.1040	0.1439	1.04E+07	-222242.	-0.01099	7529.	1.20E+12
-3588.	40688.	0.00				
63.2400	0.1260	1.00E+07	-227887.	-0.01097	7262.	1.20E+12
-3331.	43145.	0.00				
63.3760	0.1081	9636893.	-233097.	-0.01096	6990.	1.20E+12
-3054.	46113.	0.00				
63.5120	0.09022	9252411.	-237837.	-0.01095	6711.	1.20E+12
-2754.	49820.	0.00				
63.6480	0.07236	8860594.	-242062.	-0.01093	6426.	1.20E+12
-2424.	54669.	0.00				
63.7840	0.05452	8462321.	-245674.	-0.01092	6138.	1.20E+12
-2003.	59959.	0.00				
63.9200	0.03671	8058713.	-248412.	-0.01091	5845.	1.20E+12
-1351.	60087.	0.00				
64.0560	0.01891	7651505.	-250084.	-0.01090	5550.	1.20E+12
-697.640	60215.	0.00				
64.1920	0.00113	7242439.	-250687.	-0.01089	5253.	1.20E+12
-41.635	60343.	0.00				
64.3280	-0.01664	6833262.	-250218.	-0.01088	4956.	1.20E+12
616.5610	60470.	0.00				
64.4640	-0.03439	6425727.	-248673.	-0.01087	4660.	1.20E+12
1277.	60598.	0.00				
64.6000	-0.05213	6021593.	-246048.	-0.01086	4367.	1.20E+12
1940.	60726.	0.00				
64.7360	-0.06985	5622626.	-242429.	-0.01086	4078.	1.20E+12
2496.	58315.	0.00				
64.8720	-0.08756	5230306.	-238041.	-0.01085	3793.	1.20E+12
2881.	53706.	0.00				
65.0080	-0.105	4845661.	-233043.	-0.01084	3514.	1.20E+12
3243.	50279.	0.00				
65.1440	-0.123	4469653.	-227471.	-0.01084	3242.	1.20E+12

3586.	47604.	0.00					
65.2800	-0.141	4103197.	-221349.	-0.01083	2976.	1.20E+12	
3916.	45442.	0.00					
65.4160	-0.158	3747170.	-214699.	-0.01082	2718.	1.20E+12	
4234.	43651.	0.00					
65.5520	-0.176	3402420.	-207537.	-0.01082	2468.	1.20E+12	
4543.	42137.	0.00					
65.6880	-0.194	3069770.	-199876.	-0.01081	2226.	1.20E+12	
4845.	40837.	0.00					
65.8240	-0.211	2750023.	-191729.	-0.01081	1995.	1.20E+12	
5140.	39706.	0.00					
65.9600	-0.229	2443966.	-183104.	-0.01081	1773.	1.20E+12	
5430.	38713.	0.00					
66.0960	-0.247	2152371.	-174010.	-0.01080	1561.	1.20E+12	
5715.	37832.	0.00					
66.2320	-0.264	1875997.	-164454.	-0.01080	1361.	1.20E+12	
5996.	37045.	0.00					
66.3680	-0.282	1615593.	-154441.	-0.01080	1172.	1.20E+12	
6274.	36338.	0.00					
66.5040	-0.299	1371901.	-143977.	-0.01080	995.0221	1.20E+12	
6549.	35699.	0.00					
66.6400	-0.317	1145653.	-133066.	-0.01080	830.9274	1.20E+12	
6822.	35118.	0.00					
66.7760	-0.335	937575.	-121711.	-0.01079	680.0111	1.20E+12	
7092.	34588.	0.00					
66.9120	-0.352	748388.	-109917.	-0.01079	542.7956	1.20E+12	
7361.	34103.	0.00					
67.0480	-0.370	578805.	-97686.	-0.01079	419.7997	1.20E+12	
7628.	33656.	0.00					
67.1840	-0.387	429539.	-85021.	-0.01079	311.5389	1.20E+12	
7893.	33245.	0.00					
67.3200	-0.405	301296.	-71923.	-0.01079	218.5263	1.20E+12	
8158.	32865.	0.00					
67.4560	-0.423	194782.	-58395.	-0.01079	141.2725	1.20E+12	
8421.	32513.	0.00					
67.5920	-0.440	110696.	-44437.	-0.01079	80.2864	1.20E+12	
8684.	32186.	0.00					
67.7280	-0.458	49739.	-30051.	-0.01079	36.0752	1.20E+12	
8946.	31881.	0.00					
67.8640	-0.476	12609.	-15239.	-0.01079	9.1448	1.20E+12	
9207.	31597.	0.00					
68.0000	-0.493	0.00	0.00	-0.01079	0.00	1.20E+12	
9468.	15666.	0.00					

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection           =      5.11433412 inches
Computed slope at pile head    =     -0.0028543 radians
Maximum bending moment         =     -33988851. inch-lbs
Maximum shear force            =           597679. lbs
Depth of maximum bending moment =     42.70400000 feet below pile head
Depth of maximum shear force    =     53.31200000 feet below pile head
Number of iterations           =             26
Number of zero deflection points =             1
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
		lbs	in-lbs	lbs	inches	radians	
1	V, lb	597679.	-3.40E+07	0.00	5.1143	-0.00285	

```

Maximum pile-head deflection = 5.1143341197 inches
Maximum pile-head rotation   = -0.0028543109 radians = -0.163540 deg.
  
```

The analysis ended normally.

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 58ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 58ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 58ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 58ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:46:52

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	56.50000	4.00000
3	59.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	----
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
----	-----	-----
1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	4.5830	0.04400	0.00	3.30E-05	3.19E-05	1.20E+12	
-191.258	267.6969	0.00					
0.1360	4.5831	-254.659	-313.803	3.30E-05	0.1847	1.20E+12	
-193.304	541.0700	0.00					
0.2720	4.5831	-1024.	-630.945	3.29E-05	0.7428	1.20E+12	
-195.352	546.7542	0.00					
0.4080	4.5832	-2314.	-951.435	3.29E-05	1.6784	1.20E+12	
-197.404	552.4462	0.00					
0.5440	4.5832	-4130.	-1275.	3.29E-05	2.9952	1.20E+12	

-199.459	558.1462	0.00				
0.6800	4.5833	-6477.	-1602.	3.29E-05	4.6974	1.20E+12
-201.518	563.8540	0.00				
0.8160	4.5833	-9360.	-1933.	3.29E-05	6.7888	1.20E+12
-203.579	569.5698	0.00				
0.9520	4.5834	-12786.	-2267.	3.29E-05	9.2735	1.20E+12
-205.644	575.2934	0.00				
1.0880	4.5834	-16760.	-2604.	3.29E-05	12.1555	1.20E+12
-207.712	581.0250	0.00				
1.2240	4.5835	-21286.	-2945.	3.29E-05	15.4387	1.20E+12
-209.783	586.7645	0.00				
1.3600	4.5835	-26372.	-3289.	3.28E-05	19.1271	1.20E+12
-211.857	592.5119	0.00				
1.4960	4.5836	-32022.	-3636.	3.28E-05	23.2248	1.20E+12
-213.935	598.2672	0.00				
1.6320	4.5836	-38241.	-3987.	3.27E-05	27.7358	1.20E+12
-216.015	604.0305	0.00				
1.7680	4.5837	-45036.	-4342.	3.27E-05	32.6640	1.20E+12
-218.099	609.8017	0.00				
1.9040	4.5837	-52412.	-4699.	3.26E-05	38.0136	1.20E+12
-220.186	615.5809	0.00				
2.0400	4.5838	-60374.	-5060.	3.25E-05	43.7885	1.20E+12
-222.277	621.3680	0.00				
2.1760	4.5839	-68928.	-5425.	3.25E-05	49.9928	1.20E+12
-224.370	627.1631	0.00				
2.3120	4.5839	-78080.	-5793.	3.24E-05	56.6305	1.20E+12
-226.467	632.9662	0.00				
2.4480	4.5840	-87835.	-6164.	3.22E-05	63.7057	1.20E+12
-228.566	638.7773	0.00				
2.5840	4.5840	-98199.	-6539.	3.21E-05	71.2224	1.20E+12
-230.669	644.5965	0.00				
2.7200	4.5841	-109177.	-6917.	3.20E-05	79.1848	1.20E+12
-232.776	650.4237	0.00				
2.8560	4.5841	-120775.	-7298.	3.18E-05	87.5968	1.20E+12
-234.885	656.2590	0.00				
2.9920	4.5842	-132999.	-7683.	3.16E-05	96.4625	1.20E+12
-236.997	662.1024	0.00				
3.1280	4.5842	-145854.	-8072.	3.15E-05	105.7860	1.20E+12
-239.113	667.9538	0.00				
3.2640	4.5843	-159346.	-8464.	3.12E-05	115.5715	1.20E+12
-241.232	673.8135	0.00				
3.4000	4.5843	-173480.	-8859.	3.10E-05	125.8229	1.20E+12
-243.353	679.6813	0.00				
3.5360	4.5844	-188263.	-9258.	3.08E-05	136.5445	1.20E+12
-245.479	685.5573	0.00				
3.6720	4.5844	-203699.	-9661.	3.05E-05	147.7402	1.20E+12
-247.607	691.4416	0.00				
3.8080	4.5845	-219795.	-10066.	3.02E-05	159.4143	1.20E+12
-249.738	697.3341	0.00				
3.9440	4.5845	-236556.	-10476.	2.99E-05	171.5708	1.20E+12

-251.872	703.2349	0.00				
4.0800	4.5846	-253988.	-10889.	2.96E-05	184.2138	1.20E+12
-254.010	709.1441	0.00				
4.2160	4.5846	-272096.	-11305.	2.92E-05	197.3475	1.20E+12
-256.151	715.0617	0.00				
4.3520	4.5847	-290886.	-11725.	2.88E-05	210.9761	1.20E+12
-258.294	720.9877	0.00				
4.4880	4.5847	-310365.	-12148.	2.84E-05	225.1036	1.20E+12
-260.441	726.9221	0.00				
4.6240	4.5848	-330537.	-12575.	2.80E-05	239.7342	1.20E+12
-262.591	732.8651	0.00				
4.7600	4.5848	-351409.	-13005.	2.75E-05	254.8721	1.20E+12
-264.744	738.8167	0.00				
4.8960	4.5848	-372985.	-13439.	2.70E-05	270.5214	1.20E+12
-266.900	744.7769	0.00				
5.0320	4.5849	-395273.	-13876.	2.65E-05	286.6862	1.20E+12
-269.059	750.7457	0.00				
5.1680	4.5849	-418277.	-14317.	2.60E-05	303.3709	1.20E+12
-271.222	756.7233	0.00				
5.3040	4.5850	-442004.	-14761.	2.54E-05	320.5794	1.20E+12
-273.387	762.7098	0.00				
5.4400	4.5850	-466458.	-15209.	2.48E-05	338.3161	1.20E+12
-275.555	768.7050	0.00				
5.5760	4.5851	-491647.	-15661.	2.41E-05	356.5851	1.20E+12
-277.726	774.7092	0.00				
5.7120	4.5851	-517575.	-16116.	2.34E-05	375.3905	1.20E+12
-279.900	780.7224	0.00				
5.8480	4.5851	-544249.	-16574.	2.27E-05	394.7367	1.20E+12
-282.078	786.7447	0.00				
5.9840	4.5852	-571674.	-17037.	2.19E-05	414.6278	1.20E+12
-284.258	792.7762	0.00				
6.1200	4.5852	-599856.	-17502.	2.11E-05	435.0680	1.20E+12
-286.441	798.8168	0.00				
6.2560	4.5852	-628802.	-17972.	2.03E-05	456.0615	1.20E+12
-288.627	804.8668	0.00				
6.3920	4.5853	-658515.	-18444.	1.94E-05	477.6126	1.20E+12
-290.816	810.9262	0.00				
6.5280	4.5853	-689004.	-18921.	1.85E-05	499.7254	1.20E+12
-293.008	816.9950	0.00				
6.6640	4.5853	-720273.	-19401.	1.76E-05	522.4043	1.20E+12
-295.203	823.0735	0.00				
6.8000	4.5854	-752328.	-19884.	1.66E-05	545.6534	1.20E+12
-297.401	829.1616	0.00				
6.9360	4.5854	-785175.	-20371.	1.55E-05	569.4770	1.20E+12
-299.601	835.2595	0.00				
7.0720	4.5854	-818820.	-20862.	1.44E-05	593.8794	1.20E+12
-301.805	841.3672	0.00				
7.2080	4.5854	-853269.	-21357.	1.33E-05	618.8648	1.20E+12
-304.011	847.4850	0.00				
7.3440	4.5855	-888528.	-21854.	1.21E-05	644.4375	1.20E+12

-306.220	853.6128	0.00				
7.4800	4.5855	-924602.	-22356.	1.09E-05	670.6017	1.20E+12
-308.432	859.7509	0.00				
7.6160	4.5855	-961498.	-22861.	9.58E-06	697.3617	1.20E+12
-310.646	865.8993	0.00				
7.7520	4.5855	-999221.	-23370.	8.24E-06	724.7218	1.20E+12
-312.864	872.0582	0.00				
7.8880	4.5855	-1037777.	-23882.	6.86E-06	752.6863	1.20E+12
-315.084	878.2276	0.00				
8.0240	4.5855	-1077173.	-24398.	5.42E-06	781.2595	1.20E+12
-317.306	884.4078	0.00				
8.1600	4.5855	-1117414.	-24918.	3.93E-06	810.4456	1.20E+12
-319.532	890.5988	0.00				
8.2960	4.5855	-1158506.	-25441.	2.38E-06	840.2489	1.20E+12
-321.760	896.8008	0.00				
8.4320	4.5855	-1200454.	-25968.	7.73E-07	870.6738	1.20E+12
-323.990	903.0140	0.00				
8.5680	4.5855	-1243266.	-26499.	-8.90E-07	901.7246	1.20E+12
-326.223	909.2384	0.00				
8.7040	4.5855	-1286947.	-27033.	-2.61E-06	933.4056	1.20E+12
-328.459	915.4743	0.00				
8.8400	4.5855	-1331502.	-27571.	-4.39E-06	965.7210	1.20E+12
-330.698	921.7218	0.00				
8.9760	4.5855	-1376938.	-28112.	-6.23E-06	998.6753	1.20E+12
-332.938	927.9811	0.00				
9.1120	4.5855	-1423261.	-28658.	-8.14E-06	1032.	1.20E+12
-335.182	934.2523	0.00				
9.2480	4.5855	-1470477.	-29207.	-1.01E-05	1067.	1.20E+12
-337.427	940.5357	0.00				
9.3840	4.5855	-1518591.	-29759.	-1.21E-05	1101.	1.20E+12
-339.675	946.8313	0.00				
9.5200	4.5855	-1567611.	-30315.	-1.42E-05	1137.	1.20E+12
-341.926	953.1395	0.00				
9.6560	4.5854	-1617540.	-30875.	-1.64E-05	1173.	1.20E+12
-344.179	959.4603	0.00				
9.7920	4.5854	-1668387.	-31439.	-1.86E-05	1210.	1.20E+12
-346.434	965.7940	0.00				
9.9280	4.5854	-1720156.	-32006.	-2.09E-05	1248.	1.20E+12
-348.691	972.1408	0.00				
10.0640	4.5853	-1772854.	-32577.	-2.33E-05	1286.	1.20E+12
-350.951	978.5009	0.00				
10.2000	4.5853	-1826487.	-33151.	-2.58E-05	1325.	1.20E+12
-353.213	984.8745	0.00				
10.3360	4.5853	-1881060.	-33730.	-2.83E-05	1364.	1.20E+12
-355.477	991.2619	0.00				
10.4720	4.5852	-1936580.	-34312.	-3.09E-05	1405.	1.20E+12
-357.743	997.6632	0.00				
10.6080	4.5852	-1993053.	-34897.	-3.36E-05	1446.	1.20E+12
-360.011	1004.	0.00				
10.7440	4.5851	-2050485.	-35487.	-3.63E-05	1487.	1.20E+12

-362.281	1011.	0.00				
10.8800	4.5850	-2108882.	-36080.	-3.91E-05	1530.	1.20E+12
-364.553	1017.	0.00				
11.0160	4.5850	-2168250.	-36677.	-4.21E-05	1573.	1.20E+12
-366.827	1023.	0.00				
11.1520	4.5849	-2228594.	-37277.	-4.50E-05	1616.	1.20E+12
-369.103	1030.	0.00				
11.2880	4.5848	-2289922.	-37881.	-4.81E-05	1661.	1.20E+12
-371.381	1036.	0.00				
11.4240	4.5847	-2352239.	-38489.	-5.13E-05	1706.	1.20E+12
-373.661	1043.	0.00				
11.5600	4.5847	-2415551.	-39101.	-5.45E-05	1752.	1.20E+12
-375.942	1049.	0.00				
11.6960	4.5846	-2479865.	-39716.	-5.78E-05	1799.	1.20E+12
-378.225	1056.	0.00				
11.8320	4.5845	-2545186.	-40336.	-6.13E-05	1846.	1.20E+12
-380.510	1062.	0.00				
11.9680	4.5844	-2611520.	-40958.	-6.48E-05	1894.	1.20E+12
-382.796	1069.	0.00				
12.1040	4.5843	-2678874.	-41585.	-6.84E-05	1943.	1.20E+12
-385.084	1076.	0.00				
12.2400	4.5841	-2747253.	-42215.	-7.21E-05	1993.	1.20E+12
-387.373	1082.	0.00				
12.3760	4.5840	-2816665.	-42849.	-7.58E-05	2043.	1.20E+12
-389.664	1089.	0.00				
12.5120	4.5839	-2887114.	-43487.	-7.97E-05	2094.	1.20E+12
-391.956	1096.	0.00				
12.6480	4.5838	-2958607.	-44129.	-8.37E-05	2146.	1.20E+12
-394.249	1102.	0.00				
12.7840	4.5836	-3031150.	-44774.	-8.78E-05	2198.	1.20E+12
-396.543	1109.	0.00				
12.9200	4.5835	-3104749.	-45423.	-9.20E-05	2252.	1.20E+12
-398.839	1116.	0.00				
13.0560	4.5833	-3179411.	-46076.	-9.62E-05	2306.	1.20E+12
-401.136	1122.	0.00				
13.1920	4.5832	-3255140.	-46732.	-1.01E-04	2361.	1.20E+12
-403.434	1129.	0.00				
13.3280	4.5830	-3331945.	-47393.	-1.05E-04	2417.	1.20E+12
-405.732	1136.	0.00				
13.4640	4.5828	-3409830.	-48057.	-1.10E-04	2473.	1.20E+12
-408.032	1143.	0.00				
13.6000	4.5826	-3488802.	-48724.	-1.14E-04	2530.	1.20E+12
-410.332	1149.	0.00				
13.7360	4.5824	-3568866.	-49396.	-1.19E-04	2588.	1.20E+12
-412.634	1156.	0.00				
13.8720	4.5822	-3650030.	-50071.	-1.24E-04	2647.	1.20E+12
-414.935	1163.	0.00				
14.0080	4.5820	-3732299.	-50750.	-1.29E-04	2707.	1.20E+12
-417.238	1170.	0.00				
14.1440	4.5818	-3815679.	-51433.	-1.34E-04	2767.	1.20E+12

-419.541	1177.	0.00				
14.2800	4.5816	-3900177.	-52120.	-1.39E-04	2829.	1.20E+12
-421.844	1184.	0.00				
14.4160	4.5814	-3985798.	-52810.	-1.45E-04	2891.	1.20E+12
-424.148	1191.	0.00				
14.5520	4.5811	-4072549.	-53504.	-1.50E-04	2954.	1.20E+12
-426.452	1198.	0.00				
14.6880	4.5809	-4160435.	-54202.	-1.56E-04	3018.	1.20E+12
-428.756	1205.	0.00				
14.8240	4.5806	-4249464.	-54904.	-1.62E-04	3082.	1.20E+12
-431.060	1212.	0.00				
14.9600	4.5803	-4339641.	-55609.	-1.67E-04	3147.	1.20E+12
-433.365	1219.	0.00				
15.0960	4.5801	-4430972.	-56318.	-1.73E-04	3214.	1.20E+12
-435.669	1226.	0.00				
15.2320	4.5798	-4523463.	-57031.	-1.80E-04	3281.	1.20E+12
-437.973	1233.	0.00				
15.3680	4.5795	-4617121.	-57748.	-1.86E-04	3349.	1.20E+12
-440.276	1240.	0.00				
15.5040	4.5792	-4711951.	-58468.	-1.92E-04	3418.	1.20E+12
-442.580	1247.	0.00				
15.6400	4.5789	-4807960.	-59192.	-1.99E-04	3487.	1.20E+12
-444.882	1254.	0.00				
15.7760	4.5785	-4905155.	-59920.	-2.05E-04	3558.	1.20E+12
-447.185	1261.	0.00				
15.9120	4.5782	-5003540.	-60652.	-2.12E-04	3629.	1.20E+12
-449.486	1269.	0.00				
16.0480	4.5778	-5103122.	-61387.	-2.19E-04	3701.	1.20E+12
-451.787	1276.	0.00				
16.1840	4.5775	-5203908.	-62126.	-2.26E-04	3774.	1.20E+12
-454.087	1283.	0.00				
16.3200	4.5771	-5305903.	-62869.	-2.33E-04	3848.	1.20E+12
-456.385	1291.	0.00				
16.4560	4.5767	-5409113.	-63616.	-2.40E-04	3923.	1.20E+12
-458.683	1298.	0.00				
16.5920	4.5763	-5513546.	-64367.	-2.48E-04	3999.	1.20E+12
-460.979	1305.	0.00				
16.7280	4.5759	-5619206.	-65121.	-2.55E-04	4076.	1.20E+12
-463.274	1313.	0.00				
16.8640	4.5755	-5726100.	-65879.	-2.63E-04	4153.	1.20E+12
-465.568	1320.	0.00				
17.0000	4.5750	-5834234.	-66640.	-2.71E-04	4231.	1.20E+12
-467.860	1328.	0.00				
17.1360	4.5746	-5943614.	-67406.	-2.79E-04	4311.	1.20E+12
-470.150	1335.	0.00				
17.2720	4.5741	-6054246.	-68175.	-2.87E-04	4391.	1.20E+12
-472.438	1343.	0.00				
17.4080	4.5737	-6166137.	-68948.	-2.95E-04	4472.	1.20E+12
-474.724	1351.	0.00				
17.5440	4.5732	-6279292.	-69724.	-3.04E-04	4554.	1.20E+12

-477.008	1358.	0.00				
17.6800	4.5727	-6393717.	-70505.	-3.12E-04	4637.	1.20E+12
-479.290	1366.	0.00				
17.8160	4.5721	-6509419.	-71289.	-3.21E-04	4721.	1.20E+12
-481.569	1374.	0.00				
17.9520	4.5716	-6626404.	-72077.	-3.30E-04	4806.	1.20E+12
-483.846	1381.	0.00				
18.0880	4.5711	-6744677.	-72868.	-3.39E-04	4892.	1.20E+12
-486.120	1389.	0.00				
18.2240	4.5705	-6864245.	-73663.	-3.48E-04	4979.	1.20E+12
-488.391	1397.	0.00				
18.3600	4.5699	-6985114.	-74462.	-3.58E-04	5066.	1.20E+12
-490.659	1405.	0.00				
18.4960	4.5693	-7107290.	-75265.	-3.67E-04	5155.	1.20E+12
-492.924	1413.	0.00				
18.6320	4.5687	-7230778.	-76071.	-3.77E-04	5244.	1.20E+12
-495.186	1421.	0.00				
18.7680	4.5681	-7355586.	-76881.	-3.87E-04	5335.	1.20E+12
-497.444	1429.	0.00				
18.9040	4.5675	-7481718.	-77695.	-3.97E-04	5426.	1.20E+12
-499.698	1437.	0.00				
19.0400	4.5668	-7609181.	-78512.	-4.08E-04	5519.	1.20E+12
-501.949	1445.	0.00				
19.1760	4.5661	-7737982.	-79333.	-4.18E-04	5612.	1.20E+12
-504.195	1453.	0.00				
19.3120	4.5655	-7868125.	-80158.	-4.29E-04	5707.	1.20E+12
-506.438	1462.	0.00				
19.4480	4.5647	-7999617.	-80986.	-4.39E-04	5802.	1.20E+12
-508.676	1470.	0.00				
19.5840	4.5640	-8132463.	-81818.	-4.50E-04	5898.	1.20E+12
-510.909	1478.	0.00				
19.7200	4.5633	-8266671.	-82654.	-4.61E-04	5996.	1.20E+12
-513.138	1487.	0.00				
19.8560	4.5625	-8402245.	-83493.	-4.73E-04	6094.	1.20E+12
-515.362	1495.	0.00				
19.9920	4.5617	-8539192.	-84336.	-4.84E-04	6193.	1.20E+12
-517.580	1504.	0.00				
20.1280	4.5609	-8677517.	-85182.	-4.96E-04	6294.	1.20E+12
-519.794	1512.	0.00				
20.2640	4.5601	-8817227.	-86032.	-5.08E-04	6395.	1.20E+12
-522.002	1521.	0.00				
20.4000	4.5593	-8958327.	-86886.	-5.20E-04	6497.	1.20E+12
-524.204	1530.	0.00				
20.5360	4.5584	-9100823.	-87743.	-5.32E-04	6601.	1.20E+12
-526.400	1538.	0.00				
20.6720	4.5575	-9244722.	-88604.	-5.45E-04	6705.	1.20E+12
-528.590	1547.	0.00				
20.8080	4.5566	-9390028.	-89469.	-5.58E-04	6810.	1.20E+12
-530.773	1556.	0.00				
20.9440	4.5557	-9536748.	-90337.	-5.70E-04	6917.	1.20E+12

-532.950	1565.	0.00				
21.0800	4.5548	-9684887.	-91208.	-5.83E-04	7024.	1.20E+12
-535.121	1574.	0.00				
21.2160	4.5538	-9834452.	-92083.	-5.97E-04	7133.	1.20E+12
-537.284	1583.	0.00				
21.3520	4.5528	-9985447.	-92962.	-6.10E-04	7242.	1.20E+12
-539.439	1592.	0.00				
21.4880	4.5518	-1.01E+07	-93844.	-6.24E-04	7353.	1.20E+12
-541.588	1602.	0.00				
21.6240	4.5508	-1.03E+07	-94730.	-6.38E-04	7464.	1.20E+12
-543.728	1611.	0.00				
21.7600	4.5497	-1.04E+07	-95619.	-6.52E-04	7577.	1.20E+12
-545.860	1620.	0.00				
21.8960	4.5487	-1.06E+07	-96511.	-6.66E-04	7691.	1.20E+12
-547.984	1630.	0.00				
22.0320	4.5476	-1.08E+07	-97407.	-6.81E-04	7806.	1.20E+12
-550.100	1640.	0.00				
22.1680	4.5464	-1.09E+07	-98307.	-6.96E-04	7921.	1.20E+12
-552.206	1649.	0.00				
22.3040	4.5453	-1.11E+07	-99210.	-7.10E-04	8038.	1.20E+12
-554.304	1659.	0.00				
22.4400	4.5441	-1.12E+07	-100116.	-7.26E-04	8156.	1.20E+12
-556.392	1669.	0.00				
22.5760	4.5429	-1.14E+07	-101026.	-7.41E-04	8275.	1.20E+12
-558.470	1679.	0.00				
22.7120	4.5417	-1.16E+07	-101939.	-7.57E-04	8395.	1.20E+12
-560.539	1689.	0.00				
22.8480	4.5405	-1.17E+07	-102855.	-7.73E-04	8517.	1.20E+12
-562.597	1699.	0.00				
22.9840	4.5392	-1.19E+07	-103775.	-7.89E-04	8639.	1.20E+12
-564.644	1709.	0.00				
23.1200	4.5379	-1.21E+07	-104698.	-8.05E-04	8762.	1.20E+12
-566.680	1719.	0.00				
23.2560	4.5366	-1.23E+07	-105625.	-8.22E-04	8887.	1.20E+12
-568.706	1730.	0.00				
23.3920	4.5352	-1.24E+07	-106555.	-8.38E-04	9012.	1.20E+12
-570.719	1740.	0.00				
23.5280	4.5338	-1.26E+07	-107488.	-8.55E-04	9139.	1.20E+12
-572.721	1751.	0.00				
23.6640	4.5324	-1.28E+07	-108424.	-8.73E-04	9267.	1.20E+12
-574.711	1762.	0.00				
23.8000	4.5310	-1.30E+07	-109364.	-8.90E-04	9396.	1.20E+12
-576.688	1773.	0.00				
23.9360	4.5295	-1.31E+07	-110306.	-9.08E-04	9526.	1.20E+12
-578.652	1783.	0.00				
24.0720	4.5280	-1.33E+07	-111252.	-9.26E-04	9657.	1.20E+12
-580.602	1795.	0.00				
24.2080	4.5265	-1.35E+07	-112201.	-9.44E-04	9789.	1.20E+12
-582.539	1806.	0.00				
24.3440	4.5249	-1.37E+07	-113154.	-9.63E-04	9922.	1.20E+12

-584.462	1817.	0.00				
24.4800	4.5233	-1.39E+07	-114109.	-9.81E-04	10057.	1.20E+12
-586.371	1829.	0.00				
24.6160	4.5217	-1.41E+07	-115068.	-0.00100	10193.	1.20E+12
-588.264	1840.	0.00				
24.7520	4.5201	-1.42E+07	-116029.	-0.00102	10329.	1.20E+12
-590.143	1852.	0.00				
24.8880	4.5184	-1.44E+07	-116994.	-0.00104	10467.	1.20E+12
-592.005	1864.	0.00				
25.0240	4.5167	-1.46E+07	-117961.	-0.00106	10606.	1.20E+12
-593.852	1876.	0.00				
25.1600	4.5149	-1.48E+07	-118932.	-0.00108	10747.	1.20E+12
-595.682	1888.	0.00				
25.2960	4.5132	-1.50E+07	-119906.	-0.00110	10888.	1.20E+12
-597.495	1900.	0.00				
25.4320	4.5113	-1.52E+07	-120882.	-0.00112	11030.	1.20E+12
-599.291	1913.	0.00				
25.5680	4.5095	-1.54E+07	-121862.	-0.00114	11174.	1.20E+12
-601.068	1925.	0.00				
25.7040	4.5076	-1.56E+07	-122844.	-0.00116	11319.	1.20E+12
-602.828	1938.	0.00				
25.8400	4.5057	-1.58E+07	-123829.	-0.00118	11465.	1.20E+12
-604.568	1951.	0.00				
25.9760	4.5038	-1.60E+07	-124818.	-0.00120	11612.	1.20E+12
-606.289	1964.	0.00				
26.1120	4.5018	-1.62E+07	-125808.	-0.00123	11760.	1.20E+12
-607.990	1977.	0.00				
26.2480	4.4998	-1.64E+07	-126802.	-0.00125	11910.	1.20E+12
-609.671	1991.	0.00				
26.3840	4.4977	-1.66E+07	-127798.	-0.00127	12061.	1.20E+12
-611.331	2005.	0.00				
26.5200	4.4956	-1.68E+07	-128797.	-0.00129	12212.	1.20E+12
-612.969	2018.	0.00				
26.6560	4.4935	-1.70E+07	-129799.	-0.00132	12365.	1.20E+12
-614.585	2033.	0.00				
26.7920	4.4913	-1.73E+07	-130803.	-0.00134	12520.	1.20E+12
-616.179	2047.	0.00				
26.9280	4.4891	-1.75E+07	-131810.	-0.00136	12675.	1.20E+12
-617.749	2061.	0.00				
27.0640	4.4869	-1.77E+07	-132820.	-0.00139	12832.	1.20E+12
-619.296	2076.	0.00				
27.2000	4.4846	-1.79E+07	-133832.	-0.00141	12990.	1.20E+12
-620.818	2091.	0.00				
27.3360	4.4823	-1.81E+07	-134846.	-0.00144	13149.	1.20E+12
-622.315	2106.	0.00				
27.4720	4.4799	-1.83E+07	-135863.	-0.00146	13309.	1.20E+12
-623.786	2121.	0.00				
27.6080	4.4775	-1.86E+07	-136882.	-0.00149	13470.	1.20E+12
-625.230	2137.	0.00				
27.7440	4.4750	-1.88E+07	-137904.	-0.00151	13633.	1.20E+12

-626.648	2153.	0.00				
27.8800	4.4725	-1.90E+07	-138927.	-0.00154	13797.	1.20E+12
-628.037	2169.	0.00				
28.0160	4.4700	-1.92E+07	-139953.	-0.00156	13962.	1.20E+12
-629.398	2185.	0.00				
28.1520	4.4674	-1.95E+07	-140982.	-0.00159	14128.	1.20E+12
-630.730	2202.	0.00				
28.2880	4.4648	-1.97E+07	-142012.	-0.00162	14295.	1.20E+12
-632.032	2219.	0.00				
28.4240	4.4622	-1.99E+07	-143045.	-0.00164	14464.	1.20E+12
-633.302	2236.	0.00				
28.5600	4.4595	-2.02E+07	-144079.	-0.00167	14634.	1.20E+12
-634.541	2254.	0.00				
28.6960	4.4567	-2.04E+07	-145116.	-0.00170	14805.	1.20E+12
-635.748	2272.	0.00				
28.8320	4.4539	-2.07E+07	-146154.	-0.00173	14978.	1.20E+12
-636.921	2290.	0.00				
28.9680	4.4511	-2.09E+07	-147195.	-0.00175	15151.	1.20E+12
-638.059	2309.	0.00				
29.1040	4.4482	-2.11E+07	-148237.	-0.00178	15326.	1.20E+12
-639.163	2327.	0.00				
29.2400	4.4453	-2.14E+07	-149281.	-0.00181	15502.	1.20E+12
-640.230	2347.	0.00				
29.3760	4.4423	-2.16E+07	-150327.	-0.00184	15679.	1.20E+12
-641.260	2366.	0.00				
29.5120	4.4392	-2.19E+07	-151374.	-0.00187	15858.	1.20E+12
-642.252	2386.	0.00				
29.6480	4.4362	-2.21E+07	-152423.	-0.00190	16038.	1.20E+12
-643.205	2407.	0.00				
29.7840	4.4330	-2.24E+07	-153473.	-0.00193	16219.	1.20E+12
-644.117	2427.	0.00				
29.9200	4.4299	-2.26E+07	-154525.	-0.00196	16401.	1.20E+12
-644.988	2449.	0.00				
30.0560	4.4266	-2.29E+07	-155578.	-0.00199	16585.	1.20E+12
-645.817	2470.	0.00				
30.1920	4.4234	-2.31E+07	-156633.	-0.00202	16769.	1.20E+12
-646.602	2493.	0.00				
30.3280	4.4200	-2.34E+07	-157689.	-0.00206	16955.	1.20E+12
-647.343	2515.	0.00				
30.4640	4.4166	-2.36E+07	-158746.	-0.00209	17143.	1.20E+12
-648.037	2538.	0.00				
30.6000	4.4132	-2.39E+07	-159804.	-0.00212	17331.	1.20E+12
-648.684	2562.	0.00				
30.7360	4.4097	-2.42E+07	-160863.	-0.00215	17521.	1.20E+12
-649.282	2586.	0.00				
30.8720	4.4062	-2.44E+07	-161923.	-0.00219	17712.	1.20E+12
-649.830	2611.	0.00				
31.0080	4.4026	-2.47E+07	-162984.	-0.00222	17904.	1.20E+12
-650.326	2636.	0.00				
31.1440	4.3989	-2.50E+07	-164046.	-0.00225	18098.	1.20E+12

-650.770	2662.	0.00				
31.2800	4.3952	-2.52E+07	-165108.	-0.00229	18293.	1.20E+12
-651.159	2689.	0.00				
31.4160	4.3915	-2.55E+07	-166171.	-0.00232	18489.	1.20E+12
-651.491	2716.	0.00				
31.5520	4.3877	-2.58E+07	-167235.	-0.00236	18686.	1.20E+12
-651.766	2744.	0.00				
31.6880	4.3838	-2.60E+07	-168299.	-0.00239	18885.	1.20E+12
-651.982	2772.	0.00				
31.8240	4.3799	-2.63E+07	-169363.	-0.00243	19085.	1.20E+12
-652.136	2802.	0.00				
31.9600	4.3759	-2.66E+07	-170427.	-0.00246	19286.	1.20E+12
-652.227	2832.	0.00				
32.0960	4.3718	-2.69E+07	-171492.	-0.00250	19488.	1.20E+12
-652.253	2863.	0.00				
32.2320	4.3677	-2.72E+07	-172556.	-0.00254	19692.	1.20E+12
-652.212	2895.	0.00				
32.3680	4.3635	-2.74E+07	-173620.	-0.00257	19897.	1.20E+12
-652.101	2927.	0.00				
32.5040	4.3593	-2.77E+07	-174684.	-0.00261	20103.	1.20E+12
-651.920	2961.	0.00				
32.6400	4.3550	-2.80E+07	-175748.	-0.00265	20310.	1.20E+12
-651.664	2996.	0.00				
32.7760	4.3507	-2.83E+07	-176811.	-0.00269	20519.	1.20E+12
-651.333	3031.	0.00				
32.9120	4.3462	-2.86E+07	-177874.	-0.00273	20729.	1.20E+12
-650.923	3068.	0.00				
33.0480	4.3418	-2.89E+07	-178936.	-0.00277	20940.	1.20E+12
-650.432	3106.	0.00				
33.1840	4.3372	-2.92E+07	-179997.	-0.00280	21152.	1.20E+12
-649.857	3145.	0.00				
33.3200	4.3326	-2.95E+07	-181057.	-0.00284	21366.	1.20E+12
-649.196	3185.	0.00				
33.4560	4.3279	-2.98E+07	-182116.	-0.00288	21581.	1.20E+12
-648.445	3227.	0.00				
33.5920	4.3232	-3.01E+07	-183173.	-0.00293	21797.	1.20E+12
-647.601	3270.	0.00				
33.7280	4.3184	-3.04E+07	-184230.	-0.00297	22014.	1.20E+12
-646.661	3315.	0.00				
33.8640	4.3135	-3.07E+07	-185284.	-0.00301	22233.	1.20E+12
-645.622	3361.	0.00				
34.0000	4.3086	-3.10E+07	-186337.	-0.00305	22453.	1.20E+12
-644.479	3409.	0.00				
34.1360	4.3036	-3.13E+07	-187388.	-0.00309	22674.	1.20E+12
-643.229	3458.	0.00				
34.2720	4.2985	-3.16E+07	-188436.	-0.00313	22897.	1.20E+12
-641.868	3510.	0.00				
34.4080	4.2933	-3.19E+07	-189482.	-0.00318	23120.	1.20E+12
-640.392	3563.	0.00				
34.5440	4.2881	-3.22E+07	-190526.	-0.00322	23345.	1.20E+12

-638.796	3619.	0.00				
34.6800	4.2828	-3.25E+07	-191567.	-0.00327	23571.	1.20E+12
-637.075	3676.	0.00				
34.8160	4.2774	-3.28E+07	-192606.	-0.00331	23799.	1.20E+12
-635.224	3737.	0.00				
34.9520	4.2720	-3.31E+07	-193641.	-0.00335	24027.	1.20E+12
-633.237	3799.	0.00				
35.0880	4.2665	-3.34E+07	-194672.	-0.00340	24257.	1.20E+12
-631.110	3865.	0.00				
35.2240	4.2609	-3.38E+07	-195701.	-0.00345	24488.	1.20E+12
-628.835	3933.	0.00				
35.3600	4.2552	-3.41E+07	-196725.	-0.00349	24720.	1.20E+12
-626.406	4005.	0.00				
35.4960	4.2495	-3.44E+07	-197745.	-0.00354	24954.	1.20E+12
-623.816	4080.	0.00				
35.6320	4.2437	-3.47E+07	-198761.	-0.00359	25189.	1.20E+12
-621.058	4159.	0.00				
35.7680	4.2378	-3.51E+07	-199772.	-0.00363	25424.	1.20E+12
-618.122	4242.	0.00				
35.9040	4.2318	-3.54E+07	-200778.	-0.00368	25662.	1.20E+12
-615.001	4329.	0.00				
36.0400	4.2258	-3.57E+07	-201779.	-0.00373	25900.	1.20E+12
-611.685	4421.	0.00				
36.1760	4.2197	-3.60E+07	-202775.	-0.00378	26139.	1.20E+12
-608.163	4518.	0.00				
36.3120	4.2135	-3.64E+07	-203764.	-0.00383	26380.	1.20E+12
-604.424	4621.	0.00				
36.4480	4.2072	-3.67E+07	-204746.	-0.00388	26622.	1.20E+12
-599.279	4721.	0.00				
36.5840	4.2008	-3.70E+07	-205720.	-0.00393	26865.	1.20E+12
-593.787	4826.	0.00				
36.7200	4.1943	-3.74E+07	-206684.	-0.00398	27109.	1.20E+12
-588.064	4938.	0.00				
36.8560	4.1878	-3.77E+07	-207639.	-0.00403	27354.	1.20E+12
-582.096	5058.	0.00				
36.9920	4.1812	-3.81E+07	-208584.	-0.00408	27600.	1.20E+12
-575.866	5187.	0.00				
37.1280	4.1745	-3.84E+07	-209518.	-0.00413	27848.	1.20E+12
-569.357	5325.	0.00				
37.2640	4.1677	-3.87E+07	-210442.	-0.00419	28096.	1.20E+12
-562.548	5474.	0.00				
37.4000	4.1608	-3.91E+07	-211354.	-0.00424	28346.	1.20E+12
-555.418	5636.	0.00				
37.5360	4.1539	-3.94E+07	-212255.	-0.00429	28597.	1.20E+12
-547.940	5811.	0.00				
37.6720	4.1468	-3.98E+07	-213142.	-0.00435	28848.	1.20E+12
-540.086	6003.	0.00				
37.8080	4.1397	-4.01E+07	-214017.	-0.00440	29101.	1.20E+12
-531.822	6213.	0.00				
37.9440	4.1325	-4.05E+07	-214878.	-0.00445	29355.	1.20E+12

-523.112	6445.	0.00				
38.0800	4.1252	-4.08E+07	-215724.	-0.00451	29610.	1.20E+12
-513.909	6701.	0.00				
38.2160	4.1177	-4.12E+07	-216555.	-0.00457	29866.	1.20E+12
-504.163	6988.	0.00				
38.3520	4.1103	-4.15E+07	-217369.	-0.00462	30122.	1.20E+12
-493.812	7310.	0.00				
38.4880	4.1027	-4.19E+07	-218166.	-0.00468	30380.	1.20E+12
-482.782	7675.	0.00				
38.6240	4.0950	-4.22E+07	-218944.	-0.00474	30639.	1.20E+12
-470.982	8092.	0.00				
38.7600	4.0872	-4.26E+07	-219703.	-0.00479	30899.	1.20E+12
-458.302	8577.	0.00				
38.8960	4.0793	-4.30E+07	-220440.	-0.00485	31159.	1.20E+12
-444.602	9146.	0.00				
39.0320	4.0714	-4.33E+07	-221153.	-0.00491	31420.	1.20E+12
-429.699	9826.	0.00				
39.1680	4.0633	-4.37E+07	-221841.	-0.00497	31683.	1.20E+12
-413.355	10656.	0.00				
39.3040	4.0552	-4.40E+07	-222501.	-0.00503	31946.	1.20E+12
-395.240	11696.	0.00				
39.4400	4.0469	-4.44E+07	-223129.	-0.00509	32209.	1.20E+12
-374.881	13047.	0.00				
39.5760	4.0385	-4.48E+07	-223722.	-0.00515	32474.	1.20E+12
-351.558	14888.	0.00				
39.7120	4.0301	-4.51E+07	-224273.	-0.00521	32739.	1.20E+12
-324.082	17581.	0.00				
39.8480	4.0215	-4.55E+07	-224774.	-0.00527	33005.	1.20E+12
-290.223	22001.	0.00				
39.9840	4.0129	-4.59E+07	-225211.	-0.00534	33271.	1.20E+12
-244.798	31035.	0.00				
40.1200	4.0041	-4.62E+07	-225548.	-0.00540	33538.	1.20E+12
-167.615	66475.	0.00				
40.2560	3.9953	-4.66E+07	-225541.	-0.00546	33805.	1.20E+12
175.8643	60482.	0.00				
40.3920	3.9863	-4.70E+07	-225193.	-0.00552	34072.	1.20E+12
250.8109	29857.	0.00				
40.5280	3.9772	-4.73E+07	-224745.	-0.00559	34338.	1.20E+12
297.4162	21310.	0.00				
40.6640	3.9680	-4.77E+07	-224231.	-0.00565	34604.	1.20E+12
333.3245	17026.	0.00				
40.8000	3.9588	-4.81E+07	-223662.	-0.00572	34869.	1.20E+12
363.3162	14381.	0.00				
40.9360	3.9494	-4.84E+07	-223048.	-0.00578	35133.	1.20E+12
389.4762	12558.	0.00				
41.0720	3.9399	-4.88E+07	-222393.	-0.00585	35397.	1.20E+12
412.9232	11211.	0.00				
41.2080	3.9303	-4.92E+07	-221702.	-0.00592	35660.	1.20E+12
434.3352	10168.	0.00				
41.3440	3.9206	-4.95E+07	-220977.	-0.00598	35922.	1.20E+12

454.1571	9332.	0.00				
41.4800	3.9108	-4.99E+07	-220220.	-0.00605	36183.	1.20E+12
472.6986	8644.	0.00				
41.6160	3.9008	-5.02E+07	-219435.	-0.00612	36443.	1.20E+12
490.1846	8066.	0.00				
41.7520	3.8908	-5.06E+07	-218621.	-0.00619	36702.	1.20E+12
506.7843	7573.	0.00				
41.8880	3.8806	-5.10E+07	-217781.	-0.00626	36961.	1.20E+12
522.6283	7145.	0.00				
42.0240	3.8704	-5.13E+07	-216916.	-0.00633	37218.	1.20E+12
537.8200	6770.	0.00				
42.1600	3.8600	-5.17E+07	-216026.	-0.00640	37474.	1.20E+12
552.4424	6439.	0.00				
42.2960	3.8495	-5.20E+07	-215113.	-0.00647	37729.	1.20E+12
566.5637	6143.	0.00				
42.4320	3.8389	-5.24E+07	-214177.	-0.00654	37983.	1.20E+12
580.2403	5877.	0.00				
42.5680	3.8281	-5.27E+07	-213220.	-0.00661	38236.	1.20E+12
593.5195	5636.	0.00				
42.7040	3.8173	-5.31E+07	-212240.	-0.00668	38488.	1.20E+12
606.4417	5417.	0.00				
42.8400	3.8063	-5.34E+07	-211240.	-0.00675	38739.	1.20E+12
619.0412	5216.	0.00				
42.9760	3.7952	-5.38E+07	-210220.	-0.00683	38988.	1.20E+12
631.3478	5032.	0.00				
43.1120	3.7840	-5.41E+07	-209180.	-0.00690	39237.	1.20E+12
643.3873	4862.	0.00				
43.2480	3.7727	-5.44E+07	-208120.	-0.00697	39483.	1.20E+12
655.1824	4705.	0.00				
43.3840	3.7613	-5.48E+07	-207042.	-0.00705	39729.	1.20E+12
666.7531	4558.	0.00				
43.5200	3.7497	-5.51E+07	-205944.	-0.00712	39974.	1.20E+12
678.1170	4422.	0.00				
43.6560	3.7380	-5.54E+07	-204828.	-0.00720	40217.	1.20E+12
689.2899	4294.	0.00				
43.7920	3.7262	-5.58E+07	-203694.	-0.00727	40459.	1.20E+12
700.2858	4174.	0.00				
43.9280	3.7143	-5.61E+07	-202543.	-0.00735	40699.	1.20E+12
711.1175	4062.	0.00				
44.0640	3.7022	-5.64E+07	-201374.	-0.00743	40938.	1.20E+12
721.7963	3956.	0.00				
44.2000	3.6900	-5.68E+07	-200187.	-0.00750	41176.	1.20E+12
732.3325	3856.	0.00				
44.3360	3.6777	-5.71E+07	-198983.	-0.00758	41412.	1.20E+12
742.7356	3761.	0.00				
44.4720	3.6653	-5.74E+07	-197763.	-0.00766	41647.	1.20E+12
753.0140	3672.	0.00				
44.6080	3.6527	-5.77E+07	-196526.	-0.00774	41880.	1.20E+12
763.1756	3586.	0.00				
44.7440	3.6400	-5.81E+07	-195272.	-0.00782	42112.	1.20E+12

773.2275	3506.	0.00				
44.8800	3.6272	-5.84E+07	-194002.	-0.00790	42342.	1.20E+12
783.1764	3429.	0.00				
45.0160	3.6143	-5.87E+07	-192716.	-0.00798	42571.	1.20E+12
793.0282	3355.	0.00				
45.1520	3.6012	-5.90E+07	-191413.	-0.00806	42799.	1.20E+12
802.7885	3285.	0.00				
45.2880	3.5880	-5.93E+07	-190095.	-0.00814	43024.	1.20E+12
812.4625	3218.	0.00				
45.4240	3.5746	-5.96E+07	-188762.	-0.00822	43249.	1.20E+12
822.0550	3154.	0.00				
45.5600	3.5611	-5.99E+07	-187412.	-0.00830	43471.	1.20E+12
831.5704	3092.	0.00				
45.6960	3.5475	-6.02E+07	-186047.	-0.00838	43692.	1.20E+12
841.0129	3033.	0.00				
45.8320	3.5338	-6.05E+07	-184667.	-0.00846	43912.	1.20E+12
850.3863	2977.	0.00				
45.9680	3.5199	-6.08E+07	-183272.	-0.00854	44129.	1.20E+12
859.6943	2922.	0.00				
46.1040	3.5059	-6.11E+07	-181861.	-0.00863	44346.	1.20E+12
868.9400	2870.	0.00				
46.2400	3.4918	-6.14E+07	-180436.	-0.00871	44560.	1.20E+12
878.1268	2820.	0.00				
46.3760	3.4775	-6.17E+07	-178995.	-0.00879	44773.	1.20E+12
887.2576	2771.	0.00				
46.5120	3.4630	-6.20E+07	-177540.	-0.00888	44984.	1.20E+12
896.3351	2724.	0.00				
46.6480	3.4485	-6.23E+07	-176070.	-0.00896	45193.	1.20E+12
905.3619	2679.	0.00				
46.7840	3.4338	-6.26E+07	-174585.	-0.00905	45401.	1.20E+12
914.3405	2635.	0.00				
46.9200	3.4190	-6.29E+07	-173085.	-0.00913	45606.	1.20E+12
923.2732	2593.	0.00				
47.0560	3.4040	-6.32E+07	-171571.	-0.00922	45810.	1.20E+12
932.1621	2552.	0.00				
47.1920	3.3889	-6.34E+07	-170043.	-0.00931	46012.	1.20E+12
941.0093	2513.	0.00				
47.3280	3.3736	-6.37E+07	-168500.	-0.00939	46213.	1.20E+12
949.8168	2475.	0.00				
47.4640	3.3582	-6.40E+07	-166942.	-0.00948	46411.	1.20E+12
958.5864	2438.	0.00				
47.6000	3.3427	-6.43E+07	-165371.	-0.00957	46608.	1.20E+12
967.3198	2402.	0.00				
47.7360	3.3270	-6.45E+07	-163785.	-0.00965	46803.	1.20E+12
976.0186	2367.	0.00				
47.8720	3.3111	-6.48E+07	-162185.	-0.00974	46996.	1.20E+12
984.6845	2333.	0.00				
48.0080	3.2952	-6.51E+07	-158233.	-0.00983	47187.	1.20E+12
3858.	8934.	0.00				
48.1440	3.2791	-6.53E+07	-151861.	-0.00992	47370.	1.20E+12

3951.	8945.	0.00				
48.2800	3.2628	-6.56E+07	-145335.	-0.01001	47546.	1.20E+12
4046.	8956.	0.00				
48.4160	3.2464	-6.58E+07	-138654.	-0.01010	47714.	1.20E+12
4141.	8969.	0.00				
48.5520	3.2298	-6.60E+07	-131816.	-0.01019	47875.	1.20E+12
4238.	8982.	0.00				
48.6880	3.2131	-6.62E+07	-124819.	-0.01028	48026.	1.20E+12
4337.	8995.	0.00				
48.8240	3.1963	-6.64E+07	-117660.	-0.01037	48170.	1.20E+12
4437.	9009.	0.00				
48.9600	3.1793	-6.66E+07	-110337.	-0.01046	48305.	1.20E+12
4538.	9023.	0.00				
49.0960	3.1622	-6.68E+07	-102848.	-0.01055	48431.	1.20E+12
4640.	9038.	0.00				
49.2320	3.1449	-6.69E+07	-95191.	-0.01064	48548.	1.20E+12
4744.	9054.	0.00				
49.3680	3.1274	-6.71E+07	-87363.	-0.01073	48657.	1.20E+12
4849.	9069.	0.00				
49.5040	3.1099	-6.72E+07	-79362.	-0.01082	48755.	1.20E+12
4956.	9086.	0.00				
49.6400	3.0921	-6.73E+07	-71186.	-0.01091	48844.	1.20E+12
5064.	9102.	0.00				
49.7760	3.0742	-6.75E+07	-62833.	-0.01101	48924.	1.20E+12
5173.	9119.	0.00				
49.9120	3.0562	-6.76E+07	-54300.	-0.01110	48993.	1.20E+12
5284.	9137.	0.00				
50.0480	3.0380	-6.76E+07	-45585.	-0.01119	49052.	1.20E+12
5396.	9155.	0.00				
50.1840	3.0197	-6.77E+07	-36685.	-0.01128	49101.	1.20E+12
5510.	9173.	0.00				
50.3200	3.0012	-6.78E+07	-27598.	-0.01137	49139.	1.20E+12
5625.	9192.	0.00				
50.4560	2.9826	-6.78E+07	-18322.	-0.01147	49166.	1.20E+12
5742.	9211.	0.00				
50.5920	2.9638	-6.78E+07	-8853.	-0.01156	49183.	1.20E+12
5861.	9231.	0.00				
50.7280	2.9448	-6.78E+07	811.0668	-0.01165	49187.	1.20E+12
5982.	9253.	0.00				
50.8640	2.9257	-6.78E+07	10675.	-0.01174	49181.	1.20E+12
6105.	9275.	0.00				
51.0000	2.9065	-6.78E+07	20740.	-0.01183	49162.	1.20E+12
6230.	9298.	0.00				
51.1360	2.8871	-6.77E+07	31012.	-0.01193	49132.	1.20E+12
6357.	9323.	0.00				
51.2720	2.8676	-6.77E+07	41492.	-0.01202	49089.	1.20E+12
6486.	9348.	0.00				
51.4080	2.8479	-6.76E+07	52185.	-0.01211	49033.	1.20E+12
6618.	9374.	0.00				
51.5440	2.8280	-6.75E+07	63094.	-0.01220	48965.	1.20E+12

6751.	9401.	0.00				
51.6800	2.8081	-6.74E+07	74223.	-0.01229	48884.	1.20E+12
6887.	9429.	0.00				
51.8160	2.7879	-6.73E+07	85574.	-0.01239	48789.	1.20E+12
7024.	9458.	0.00				
51.9520	2.7676	-6.71E+07	97152.	-0.01248	48681.	1.20E+12
7164.	9487.	0.00				
52.0880	2.7472	-6.70E+07	108960.	-0.01257	48559.	1.20E+12
7306.	9518.	0.00				
52.2240	2.7266	-6.68E+07	121002.	-0.01266	48423.	1.20E+12
7451.	9549.	0.00				
52.3600	2.7059	-6.66E+07	133282.	-0.01275	48273.	1.20E+12
7598.	9581.	0.00				
52.4960	2.6850	-6.63E+07	145803.	-0.01284	48108.	1.20E+12
7746.	9614.	0.00				
52.6320	2.6640	-6.61E+07	158568.	-0.01293	47928.	1.20E+12
7898.	9647.	0.00				
52.7680	2.6428	-6.58E+07	171583.	-0.01302	47733.	1.20E+12
8051.	9681.	0.00				
52.9040	2.6215	-6.55E+07	184850.	-0.01311	47522.	1.20E+12
8207.	9716.	0.00				
53.0400	2.6000	-6.52E+07	198373.	-0.01320	47295.	1.20E+12
8366.	9752.	0.00				
53.1760	2.5784	-6.49E+07	212157.	-0.01329	47052.	1.20E+12
8526.	9788.	0.00				
53.3120	2.5566	-6.45E+07	226206.	-0.01338	46793.	1.20E+12
8690.	9825.	0.00				
53.4480	2.5347	-6.41E+07	240523.	-0.01346	46517.	1.20E+12
8855.	9863.	0.00				
53.5840	2.5127	-6.37E+07	255112.	-0.01355	46223.	1.20E+12
9023.	9901.	0.00				
53.7200	2.4905	-6.33E+07	269977.	-0.01364	45913.	1.20E+12
9194.	9940.	0.00				
53.8560	2.4682	-6.28E+07	285123.	-0.01372	45584.	1.20E+12
9367.	9980.	0.00				
53.9920	2.4457	-6.24E+07	300553.	-0.01381	45238.	1.20E+12
9543.	10020.	0.00				
54.1280	2.4231	-6.19E+07	316273.	-0.01389	44873.	1.20E+12
9721.	10061.	0.00				
54.2640	2.4004	-6.13E+07	332285.	-0.01398	44489.	1.20E+12
9902.	10102.	0.00				
54.4000	2.3775	-6.08E+07	348594.	-0.01406	44086.	1.20E+12
10085.	10144.	0.00				
54.5360	2.3545	-6.02E+07	365205.	-0.01414	43664.	1.20E+12
10271.	10187.	0.00				
54.6720	2.3313	-5.96E+07	382121.	-0.01422	43221.	1.20E+12
10460.	10230.	0.00				
54.8080	2.3081	-5.90E+07	399348.	-0.01430	42759.	1.20E+12
10651.	10274.	0.00				
54.9440	2.2846	-5.83E+07	416888.	-0.01438	42276.	1.20E+12

10845.	10318.	0.00				
55.0800	2.2611	-5.76E+07	434748.	-0.01446	41772.	1.20E+12
11042.	10363.	0.00				
55.2160	2.2374	-5.69E+07	452930.	-0.01454	41247.	1.20E+12
11241.	10408.	0.00				
55.3520	2.2137	-5.61E+07	471441.	-0.01462	40700.	1.20E+12
11443.	10454.	0.00				
55.4880	2.1897	-5.53E+07	490283.	-0.01469	40131.	1.20E+12
11648.	10501.	0.00				
55.6240	2.1657	-5.45E+07	509461.	-0.01477	39539.	1.20E+12
11855.	10548.	0.00				
55.7600	2.1415	-5.37E+07	528981.	-0.01484	38925.	1.20E+12
12066.	10595.	0.00				
55.8960	2.1173	-5.28E+07	548846.	-0.01491	38287.	1.20E+12
12279.	10644.	0.00				
56.0320	2.0929	-5.19E+07	569062.	-0.01498	37625.	1.20E+12
12495.	10692.	0.00				
56.1680	2.0684	-5.09E+07	589632.	-0.01505	36940.	1.20E+12
12714.	10741.	0.00				
56.3040	2.0437	-5.00E+07	610561.	-0.01512	36230.	1.20E+12
12935.	10791.	0.00				
56.4400	2.0190	-4.89E+07	631854.	-0.01519	35494.	1.20E+12
13160.	10841.	0.00				
56.5760	1.9941	-4.79E+07	653099.	-0.01526	34734.	1.20E+12
12875.	11033.	0.00				
56.7120	1.9692	-4.68E+07	673542.	-0.01532	33948.	1.20E+12
12178.	11369.	0.00				
56.8480	1.9441	-4.57E+07	692840.	-0.01538	33139.	1.20E+12
11470.	11760.	0.00				
56.9840	1.9190	-4.45E+07	710973.	-0.01544	32308.	1.20E+12
10751.	12221.	0.00				
57.1200	1.8937	-4.34E+07	727922.	-0.01550	31456.	1.20E+12
10020.	12780.	0.00				
57.2560	1.8684	-4.22E+07	743670.	-0.01556	30585.	1.20E+12
9278.	13476.	0.00				
57.3920	1.8429	-4.09E+07	758196.	-0.01562	29696.	1.20E+12
8523.	14373.	0.00				
57.5280	1.8174	-3.97E+07	771448.	-0.01567	28790.	1.20E+12
7718.	15513.	0.00				
57.6640	1.7918	-3.84E+07	783321.	-0.01573	27869.	1.20E+12
6832.	16990.	0.00				
57.8000	1.7661	-3.71E+07	793660.	-0.01578	26936.	1.20E+12
5838.	19034.	0.00				
57.9360	1.7403	-3.58E+07	802252.	-0.01583	25991.	1.20E+12
4691.	22187.	0.00				
58.0720	1.7144	-3.45E+07	808759.	-0.01588	25036.	1.20E+12
3284.	28265.	0.00				
58.2080	1.6885	-3.32E+07	812374.	-0.01592	24076.	1.20E+12
1147.	54717.	0.00				
58.3440	1.6624	-3.19E+07	811240.	-0.01597	23113.	1.20E+12

-2537.	34194.	0.00				
58.4800	1.6363	-3.05E+07	805725.	-0.01601	22155.	1.20E+12
-4221.	24927.	0.00				
58.6160	1.6102	-2.92E+07	797731.	-0.01605	21206.	1.20E+12
-5575.	21085.	0.00				
58.7520	1.5840	-2.79E+07	787659.	-0.01609	20267.	1.20E+12
-6768.	18830.	0.00				
58.8880	1.5577	-2.67E+07	775720.	-0.01613	19341.	1.20E+12
-7862.	17301.	0.00				
59.0240	1.5313	-2.54E+07	762052.	-0.01616	18431.	1.20E+12
-8888.	16177.	0.00				
59.1600	1.5049	-2.42E+07	746749.	-0.01619	17537.	1.20E+12
-9866.	15311.	0.00				
59.2960	1.4785	-2.30E+07	729849.	-0.01623	16663.	1.20E+12
-10844.	14669.	0.00				
59.4320	1.4520	-2.18E+07	711343.	-0.01626	15809.	1.20E+12
-11835.	14189.	0.00				
59.5680	1.4254	-2.07E+07	691648.	-0.01629	14979.	1.20E+12
-12301.	14083.	0.00				
59.7040	1.3988	-1.95E+07	671632.	-0.01631	14172.	1.20E+12
-12229.	14268.	0.00				
59.8400	1.3722	-1.85E+07	651735.	-0.01634	13389.	1.20E+12
-12155.	14457.	0.00				
59.9760	1.3455	-1.74E+07	631960.	-0.01636	12629.	1.20E+12
-12079.	14651.	0.00				
60.1120	1.3188	-1.64E+07	612312.	-0.01639	11893.	1.20E+12
-12000.	14851.	0.00				
60.2480	1.2920	-1.54E+07	592793.	-0.01641	11180.	1.20E+12
-11920.	15057.	0.00				
60.3840	1.2652	-1.45E+07	573407.	-0.01643	10489.	1.20E+12
-11837.	15269.	0.00				
60.5200	1.2384	-1.35E+07	554158.	-0.01645	9822.	1.20E+12
-11752.	15488.	0.00				
60.6560	1.2115	-1.27E+07	535050.	-0.01647	9177.	1.20E+12
-11665.	15714.	0.00				
60.7920	1.1846	-1.18E+07	516086.	-0.01648	8555.	1.20E+12
-11575.	15947.	0.00				
60.9280	1.1577	-1.10E+07	497269.	-0.01650	7956.	1.20E+12
-11484.	16188.	0.00				
61.0640	1.1308	-1.02E+07	478604.	-0.01651	7378.	1.20E+12
-11390.	16439.	0.00				
61.2000	1.1038	-9406941.	460094.	-0.01653	6823.	1.20E+12
-11294.	16698.	0.00				
61.3360	1.0768	-8671107.	441743.	-0.01654	6289.	1.20E+12
-11195.	16967.	0.00				
61.4720	1.0498	-7965091.	423555.	-0.01655	5777.	1.20E+12
-11095.	17247.	0.00				
61.6080	1.0228	-7288625.	405532.	-0.01656	5286.	1.20E+12
-10992.	17538.	0.00				
61.7440	0.9958	-6641434.	387679.	-0.01657	4817.	1.20E+12

-10887.	17842.	0.00				
61.8800	0.9687	-6023240.	370001.	-0.01658	4369.	1.20E+12
-10778.	18157.	0.00				
62.0160	0.9417	-5433752.	352503.	-0.01658	3941.	1.20E+12
-10665.	18483.	0.00				
62.1520	0.9146	-4872669.	335194.	-0.01659	3534.	1.20E+12
-10548.	18821.	0.00				
62.2880	0.8875	-4339679.	318080.	-0.01660	3148.	1.20E+12
-10426.	19171.	0.00				
62.4240	0.8604	-3834457.	301169.	-0.01660	2781.	1.20E+12
-10299.	19534.	0.00				
62.5600	0.8333	-3356664.	284468.	-0.01661	2435.	1.20E+12
-10167.	19912.	0.00				
62.6960	0.8062	-2905952.	267987.	-0.01661	2108.	1.20E+12
-10031.	20305.	0.00				
62.8320	0.7791	-2481956.	251733.	-0.01662	1800.	1.20E+12
-9889.	20714.	0.00				
62.9680	0.7520	-2084297.	235714.	-0.01662	1512.	1.20E+12
-9741.	21141.	0.00				
63.1040	0.7249	-1712584.	219941.	-0.01662	1242.	1.20E+12
-9589.	21588.	0.00				
63.2400	0.6977	-1366410.	204422.	-0.01662	991.0392	1.20E+12
-9430.	22056.	0.00				
63.3760	0.6706	-1045351.	189167.	-0.01663	758.1795	1.20E+12
-9265.	22547.	0.00				
63.5120	0.6435	-748969.	174187.	-0.01663	543.2171	1.20E+12
-9094.	23064.	0.00				
63.6480	0.6163	-476806.	159491.	-0.01663	345.8212	1.20E+12
-8916.	23608.	0.00				
63.7840	0.5892	-228390.	145092.	-0.01663	165.6480	1.20E+12
-8731.	24183.	0.00				
63.9200	0.5621	-3226.	131000.	-0.01663	2.3401	1.20E+12
-8538.	24792.	0.00				
64.0560	0.5349	199196.	117229.	-0.01663	144.4740	1.20E+12
-8338.	25439.	0.00				
64.1920	0.5078	379410.	103792.	-0.01663	275.1810	1.20E+12
-8130.	26129.	0.00				
64.3280	0.4806	537971.	90701.	-0.01663	390.1834	1.20E+12
-7913.	26867.	0.00				
64.4640	0.4535	675458.	77972.	-0.01663	489.9005	1.20E+12
-7686.	27660.	0.00				
64.6000	0.4264	792472.	65621.	-0.01663	574.7694	1.20E+12
-7450.	28516.	0.00				
64.7360	0.3992	889643.	53664.	-0.01662	645.2467	1.20E+12
-7203.	29445.	0.00				
64.8720	0.3721	967630.	42119.	-0.01662	701.8092	1.20E+12
-6945.	30458.	0.00				
65.0080	0.3450	1027120.	31006.	-0.01662	744.9563	1.20E+12
-6674.	31572.	0.00				
65.1440	0.3179	1068834.	20347.	-0.01662	775.2112	1.20E+12

-6389.	32805.	0.00				
65.2800	0.2907	1093531.	10164.	-0.01662	793.1237	1.20E+12
-6090.	34183.	0.00				
65.4160	0.2636	1102009.	483.9902	-0.01662	799.2727	1.20E+12
-5773.	35741.	0.00				
65.5520	0.2365	1095111.	-8664.	-0.01662	794.2695	1.20E+12
-5438.	37525.	0.00				
65.6880	0.2094	1073730.	-17247.	-0.01661	778.7619	1.20E+12
-5081.	39603.	0.00				
65.8240	0.1823	1038816.	-25227.	-0.01661	753.4396	1.20E+12
-4699.	42072.	0.00				
65.9600	0.1551	991388.	-32559.	-0.01661	719.0408	1.20E+12
-4286.	45088.	0.00				
66.0960	0.1280	932544.	-39188.	-0.01661	676.3619	1.20E+12
-3837.	48910.	0.00				
66.2320	0.1009	863480.	-45045.	-0.01661	626.2703	1.20E+12
-3341.	54017.	0.00				
66.3680	0.07383	785517.	-50039.	-0.01661	569.7254	1.20E+12
-2779.	61432.	0.00				
66.5040	0.04672	700153.	-53767.	-0.01661	507.8120	1.20E+12
-1790.	62516.	0.00				
66.6400	0.01962	610022.	-55842.	-0.01661	442.4412	1.20E+12
-753.182	62644.	0.00				
66.7760	-0.00748	517885.	-56222.	-0.01661	375.6155	1.20E+12
287.6545	62772.	0.00				
66.9120	-0.03458	426515.	-54900.	-0.01660	309.3454	1.20E+12
1333.	62899.	0.00				
67.0480	-0.06168	338693.	-51868.	-0.01660	245.6497	1.20E+12
2382.	63027.	0.00				
67.1840	-0.08877	257216.	-47295.	-0.01660	186.5553	1.20E+12
3222.	59237.	0.00				
67.3200	-0.116	184321.	-41556.	-0.01660	133.6856	1.20E+12
3811.	53681.	0.00				
67.4560	-0.143	121577.	-34891.	-0.01660	88.1785	1.20E+12
4356.	49729.	0.00				
67.5920	-0.170	70437.	-27362.	-0.01660	51.0867	1.20E+12
4870.	46732.	0.00				
67.7280	-0.197	32266.	-19016.	-0.01660	23.4023	1.20E+12
5359.	44361.	0.00				
67.8640	-0.224	8370.	-9885.	-0.01660	6.0704	1.20E+12
5830.	42424.	0.00				
68.0000	-0.251	0.00	0.00	-0.01660	0.00	1.20E+12
6285.	20403.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          = 4.58299723 inches
Computed slope at pile head  = 0.00003295 radians
Maximum bending moment       = -67817870. inch-lbs
Maximum shear force          = 812374. lbs
Depth of maximum bending moment = 50.72800000 feet below pile head
Depth of maximum shear force  = 58.20800000 feet below pile head
Number of iterations         = 22
Number of zero deflection points = 1

```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

```

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
No.		1	2	lbs	inches	radians	
1	V, lb	0.00	M, in-lb	0.00	4.5830	3.30E-05	
		812374.	-6.78E+07				

```

Maximum pile-head deflection = 4.5829972255 inches
Maximum pile-head rotation   = 0.0000329505 radians = 0.001888 deg.

```

The analysis ended normally.

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 63ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 63ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 63ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 63ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:50:06

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	61.50000	4.00000
3	64.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	----
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
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1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	3.9886	0.02340	0.00	0.00146	1.70E-05	1.20E+12	
51.6131	3681.	0.00					
0.1360	3.9909	68.7641	81.5125	0.00146	0.04987	1.20E+12	
48.2774	8689.	0.00					
0.2720	3.9933	266.0803	156.8903	0.00146	0.1930	1.20E+12	
44.1000	10754.	0.00					
0.4080	3.9957	580.8541	224.3103	0.00146	0.4213	1.20E+12	
38.5221	14560.	0.00					
0.5440	3.9981	998.2293	280.1201	0.00146	0.7240	1.20E+12	

29.8716	25087.	0.00				
0.6800	4.0004	1495.	289.8021	0.00146	1.0844	1.20E+12
-18.006	68121.	0.00				
0.8160	4.0028	1944.	247.1187	0.00146	1.4101	1.20E+12
-34.302	19950.	0.00				
0.9520	4.0052	2302.	184.4139	0.00146	1.6694	1.20E+12
-42.543	13402.	0.00				
1.0880	4.0076	2546.	109.9241	0.00146	1.8466	1.20E+12
-48.743	10529.	0.00				
1.2240	4.0099	2661.	26.1410	0.00146	1.9297	1.20E+12
-53.932	8864.	0.00				
1.3600	4.0123	2631.	-65.607	0.00146	1.9085	1.20E+12
-58.505	7760.	0.00				
1.4960	4.0147	2446.	-164.478	0.00146	1.7743	1.20E+12
-62.660	6966.	0.00				
1.6320	4.0171	2095.	-269.884	0.00146	1.5191	1.20E+12
-66.514	6365.	0.00				
1.7680	4.0194	1566.	-381.392	0.00146	1.1354	1.20E+12
-70.138	5892.	0.00				
1.9040	4.0218	849.6726	-498.670	0.00146	0.6163	1.20E+12
-73.584	5508.	0.00				
2.0400	4.0242	-62.149	-621.454	0.00146	0.04508	1.20E+12
-76.887	5190.	0.00				
2.1760	4.0266	-1179.	-749.532	0.00146	0.8549	1.20E+12
-80.072	4921.	0.00				
2.3120	4.0289	-2509.	-882.729	0.00146	1.8195	1.20E+12
-83.160	4692.	0.00				
2.4480	4.0313	-4060.	-1021.	0.00146	2.9447	1.20E+12
-86.166	4492.	0.00				
2.5840	4.0337	-5841.	-1164.	0.00146	4.2363	1.20E+12
-89.103	4318.	0.00				
2.7200	4.0361	-7859.	-1312.	0.00146	5.7000	1.20E+12
-91.980	4164.	0.00				
2.8560	4.0384	-10122.	-1464.	0.00146	7.3415	1.20E+12
-94.806	4027.	0.00				
2.9920	4.0408	-12638.	-1621.	0.00146	9.1661	1.20E+12
-97.588	3903.	0.00				
3.1280	4.0432	-15413.	-1783.	0.00146	11.1791	1.20E+12
-100.331	3792.	0.00				
3.2640	4.0455	-18456.	-1949.	0.00145	13.3861	1.20E+12
-103.040	3692.	0.00				
3.4000	4.0479	-21773.	-2119.	0.00145	15.7920	1.20E+12
-105.720	3600.	0.00				
3.5360	4.0503	-25372.	-2294.	0.00145	18.4022	1.20E+12
-108.374	3516.	0.00				
3.6720	4.0527	-29260.	-2473.	0.00145	21.2217	1.20E+12
-111.004	3439.	0.00				
3.8080	4.0550	-33443.	-2656.	0.00145	24.2557	1.20E+12
-113.615	3368.	0.00				
3.9440	4.0574	-37929.	-2843.	0.00145	27.5091	1.20E+12

-116.207	3303.	0.00				
4.0800	4.0598	-42724.	-3035.	0.00145	30.9870	1.20E+12
-118.784	3242.	0.00				
4.2160	4.0622	-47835.	-3231.	0.00145	34.6944	1.20E+12
-121.347	3185.	0.00				
4.3520	4.0645	-53270.	-3431.	0.00145	38.6362	1.20E+12
-123.897	3133.	0.00				
4.4880	4.0669	-59035.	-3636.	0.00145	42.8173	1.20E+12
-126.437	3084.	0.00				
4.6240	4.0693	-65137.	-3844.	0.00145	47.2427	1.20E+12
-128.968	3038.	0.00				
4.7600	4.0717	-71582.	-4056.	0.00145	51.9172	1.20E+12
-131.490	2994.	0.00				
4.8960	4.0740	-78377.	-4273.	0.00145	56.8457	1.20E+12
-134.006	2954.	0.00				
5.0320	4.0764	-85529.	-4494.	0.00145	62.0331	1.20E+12
-136.515	2916.	0.00				
5.1680	4.0788	-93045.	-4719.	0.00145	67.4842	1.20E+12
-139.019	2880.	0.00				
5.3040	4.0812	-100931.	-4948.	0.00145	73.2038	1.20E+12
-141.518	2846.	0.00				
5.4400	4.0835	-109194.	-5181.	0.00145	79.1969	1.20E+12
-144.014	2814.	0.00				
5.5760	4.0859	-117840.	-5418.	0.00145	85.4681	1.20E+12
-146.507	2783.	0.00				
5.7120	4.0883	-126877.	-5659.	0.00145	92.0223	1.20E+12
-148.998	2755.	0.00				
5.8480	4.0906	-136311.	-5904.	0.00145	98.8644	1.20E+12
-151.487	2727.	0.00				
5.9840	4.0930	-146148.	-6153.	0.00145	105.9991	1.20E+12
-153.975	2701.	0.00				
6.1200	4.0954	-156395.	-6407.	0.00145	113.4312	1.20E+12
-156.462	2677.	0.00				
6.2560	4.0978	-167059.	-6664.	0.00145	121.1656	1.20E+12
-158.949	2653.	0.00				
6.3920	4.1001	-178146.	-6925.	0.00145	129.2070	1.20E+12
-161.435	2631.	0.00				
6.5280	4.1025	-189663.	-7191.	0.00145	137.5603	1.20E+12
-163.923	2610.	0.00				
6.6640	4.1049	-201617.	-7460.	0.00145	146.2302	1.20E+12
-166.411	2590.	0.00				
6.8000	4.1072	-214014.	-7734.	0.00145	155.2216	1.20E+12
-168.901	2570.	0.00				
6.9360	4.1096	-226861.	-8012.	0.00145	164.5393	1.20E+12
-171.392	2552.	0.00				
7.0720	4.1120	-240164.	-8293.	0.00145	174.1880	1.20E+12
-173.885	2534.	0.00				
7.2080	4.1143	-253931.	-8579.	0.00145	184.1727	1.20E+12
-176.380	2517.	0.00				
7.3440	4.1167	-268167.	-8869.	0.00145	194.4981	1.20E+12

-178.877	2501.	0.00				
7.4800	4.1191	-282880.	-9163.	0.00145	205.1690	1.20E+12
-181.377	2486.	0.00				
7.6160	4.1214	-298076.	-9461.	0.00145	216.1903	1.20E+12
-183.879	2471.	0.00				
7.7520	4.1238	-313761.	-9763.	0.00145	227.5668	1.20E+12
-186.385	2457.	0.00				
7.8880	4.1262	-329943.	-10070.	0.00145	239.3033	1.20E+12
-188.894	2443.	0.00				
8.0240	4.1285	-346628.	-10380.	0.00145	251.4048	1.20E+12
-191.406	2430.	0.00				
8.1600	4.1309	-363823.	-10694.	0.00145	263.8760	1.20E+12
-193.922	2418.	0.00				
8.2960	4.1333	-381534.	-11013.	0.00145	276.7218	1.20E+12
-196.441	2406.	0.00				
8.4320	4.1356	-399769.	-11335.	0.00145	289.9471	1.20E+12
-198.964	2394.	0.00				
8.5680	4.1380	-418533.	-11662.	0.00145	303.5567	1.20E+12
-201.492	2383.	0.00				
8.7040	4.1403	-437834.	-11993.	0.00145	317.5556	1.20E+12
-204.023	2372.	0.00				
8.8400	4.1427	-457679.	-12328.	0.00144	331.9485	1.20E+12
-206.558	2362.	0.00				
8.9760	4.1451	-478074.	-12667.	0.00144	346.7405	1.20E+12
-209.098	2352.	0.00				
9.1120	4.1474	-499025.	-13011.	0.00144	361.9365	1.20E+12
-211.642	2343.	0.00				
9.2480	4.1498	-520541.	-13358.	0.00144	377.5412	1.20E+12
-214.191	2334.	0.00				
9.3840	4.1521	-542626.	-13710.	0.00144	393.5597	1.20E+12
-216.744	2325.	0.00				
9.5200	4.1545	-565289.	-14066.	0.00144	409.9970	1.20E+12
-219.302	2317.	0.00				
9.6560	4.1568	-588537.	-14426.	0.00144	426.8578	1.20E+12
-221.865	2309.	0.00				
9.7920	4.1592	-612375.	-14790.	0.00144	444.1472	1.20E+12
-224.433	2301.	0.00				
9.9280	4.1615	-636810.	-15158.	0.00144	461.8702	1.20E+12
-227.005	2293.	0.00				
10.0640	4.1639	-661851.	-15531.	0.00144	480.0317	1.20E+12
-229.583	2286.	0.00				
10.2000	4.1662	-687503.	-15908.	0.00144	498.6367	1.20E+12
-232.165	2279.	0.00				
10.3360	4.1686	-713773.	-16289.	0.00144	517.6902	1.20E+12
-234.753	2273.	0.00				
10.4720	4.1709	-740669.	-16674.	0.00144	537.1972	1.20E+12
-237.345	2266.	0.00				
10.6080	4.1733	-768196.	-17063.	0.00143	557.1626	1.20E+12
-239.943	2260.	0.00				
10.7440	4.1756	-796363.	-17457.	0.00143	577.5916	1.20E+12

-242.546	2254.	0.00				
10.8800	4.1779	-825176.	-17855.	0.00143	598.4891	1.20E+12
-245.155	2249.	0.00				
11.0160	4.1803	-854641.	-18257.	0.00143	619.8602	1.20E+12
-247.768	2243.	0.00				
11.1520	4.1826	-884767.	-18664.	0.00143	641.7099	1.20E+12
-250.387	2238.	0.00				
11.2880	4.1849	-915560.	-19074.	0.00143	664.0433	1.20E+12
-253.012	2233.	0.00				
11.4240	4.1873	-947026.	-19489.	0.00143	686.8654	1.20E+12
-255.641	2228.	0.00				
11.5600	4.1896	-979173.	-19909.	0.00143	710.1814	1.20E+12
-258.277	2223.	0.00				
11.6960	4.1919	-1012008.	-20332.	0.00142	733.9963	1.20E+12
-260.917	2219.	0.00				
11.8320	4.1942	-1045538.	-20760.	0.00142	758.3152	1.20E+12
-263.563	2214.	0.00				
11.9680	4.1966	-1079770.	-21193.	0.00142	783.1433	1.20E+12
-266.214	2210.	0.00				
12.1040	4.1989	-1114712.	-21629.	0.00142	808.4856	1.20E+12
-268.871	2206.	0.00				
12.2400	4.2012	-1150369.	-22070.	0.00142	834.3473	1.20E+12
-271.534	2202.	0.00				
12.3760	4.2035	-1186749.	-22516.	0.00142	860.7336	1.20E+12
-274.201	2199.	0.00				
12.5120	4.2058	-1223860.	-22965.	0.00142	887.6495	1.20E+12
-276.875	2195.	0.00				
12.6480	4.2081	-1261708.	-23419.	0.00141	915.1003	1.20E+12
-279.553	2192.	0.00				
12.7840	4.2104	-1300301.	-23878.	0.00141	943.0911	1.20E+12
-282.237	2189.	0.00				
12.9200	4.2127	-1339645.	-24341.	0.00141	971.6272	1.20E+12
-284.927	2186.	0.00				
13.0560	4.2150	-1379749.	-24808.	0.00141	1001.	1.20E+12
-287.622	2183.	0.00				
13.1920	4.2173	-1420618.	-25279.	0.00141	1030.	1.20E+12
-290.323	2180.	0.00				
13.3280	4.2196	-1462261.	-25755.	0.00140	1061.	1.20E+12
-293.029	2177.	0.00				
13.4640	4.2219	-1504684.	-26236.	0.00140	1091.	1.20E+12
-295.740	2175.	0.00				
13.6000	4.2242	-1547895.	-26721.	0.00140	1123.	1.20E+12
-298.457	2172.	0.00				
13.7360	4.2265	-1591900.	-27210.	0.00140	1155.	1.20E+12
-301.179	2170.	0.00				
13.8720	4.2288	-1636708.	-27704.	0.00140	1187.	1.20E+12
-303.907	2168.	0.00				
14.0080	4.2311	-1682326.	-28202.	0.00139	1220.	1.20E+12
-306.640	2166.	0.00				
14.1440	4.2333	-1728760.	-28705.	0.00139	1254.	1.20E+12

-309.379	2164.	0.00				
14.2800	4.2356	-1776018.	-29212.	0.00139	1288.	1.20E+12
-312.122	2162.	0.00				
14.4160	4.2379	-1824107.	-29723.	0.00139	1323.	1.20E+12
-314.871	2160.	0.00				
14.5520	4.2401	-1873035.	-30240.	0.00138	1358.	1.20E+12
-317.626	2159.	0.00				
14.6880	4.2424	-1922809.	-30760.	0.00138	1395.	1.20E+12
-320.385	2157.	0.00				
14.8240	4.2446	-1973436.	-31285.	0.00138	1431.	1.20E+12
-323.150	2156.	0.00				
14.9600	4.2469	-2024924.	-31815.	0.00138	1469.	1.20E+12
-325.920	2154.	0.00				
15.0960	4.2491	-2077280.	-32349.	0.00137	1507.	1.20E+12
-328.695	2153.	0.00				
15.2320	4.2514	-2130512.	-32888.	0.00137	1545.	1.20E+12
-331.475	2152.	0.00				
15.3680	4.2536	-2184626.	-33431.	0.00137	1584.	1.20E+12
-334.260	2151.	0.00				
15.5040	4.2558	-2239631.	-33979.	0.00136	1624.	1.20E+12
-337.051	2150.	0.00				
15.6400	4.2581	-2295533.	-34531.	0.00136	1665.	1.20E+12
-339.846	2149.	0.00				
15.7760	4.2603	-2352341.	-35088.	0.00136	1706.	1.20E+12
-342.646	2149.	0.00				
15.9120	4.2625	-2410061.	-35650.	0.00136	1748.	1.20E+12
-345.452	2148.	0.00				
16.0480	4.2647	-2468701.	-36216.	0.00135	1791.	1.20E+12
-348.262	2147.	0.00				
16.1840	4.2669	-2528269.	-36786.	0.00135	1834.	1.20E+12
-351.077	2147.	0.00				
16.3200	4.2691	-2588772.	-37362.	0.00134	1878.	1.20E+12
-353.896	2146.	0.00				
16.4560	4.2713	-2650217.	-37941.	0.00134	1922.	1.20E+12
-356.721	2146.	0.00				
16.5920	4.2735	-2712613.	-38526.	0.00134	1967.	1.20E+12
-359.550	2146.	0.00				
16.7280	4.2757	-2775966.	-39115.	0.00133	2013.	1.20E+12
-362.384	2145.	0.00				
16.8640	4.2778	-2840284.	-39709.	0.00133	2060.	1.20E+12
-365.222	2145.	0.00				
17.0000	4.2800	-2905575.	-40307.	0.00133	2107.	1.20E+12
-368.065	2145.	0.00				
17.1360	4.2822	-2971846.	-40910.	0.00132	2155.	1.20E+12
-370.912	2145.	0.00				
17.2720	4.2843	-3039106.	-41518.	0.00132	2204.	1.20E+12
-373.764	2145.	0.00				
17.4080	4.2865	-3107360.	-42130.	0.00131	2254.	1.20E+12
-376.620	2146.	0.00				
17.5440	4.2886	-3176618.	-42747.	0.00131	2304.	1.20E+12

-379.480	2146.	0.00				
17.6800	4.2907	-3246887.	-43369.	0.00131	2355.	1.20E+12
-382.345	2146.	0.00				
17.8160	4.2929	-3318174.	-43995.	0.00130	2407.	1.20E+12
-385.214	2147.	0.00				
17.9520	4.2950	-3390487.	-44626.	0.00130	2459.	1.20E+12
-388.087	2147.	0.00				
18.0880	4.2971	-3463833.	-45262.	0.00129	2512.	1.20E+12
-390.963	2148.	0.00				
18.2240	4.2992	-3538221.	-45902.	0.00129	2566.	1.20E+12
-393.844	2148.	0.00				
18.3600	4.3013	-3613658.	-46547.	0.00128	2621.	1.20E+12
-396.729	2149.	0.00				
18.4960	4.3034	-3690151.	-47197.	0.00128	2676.	1.20E+12
-399.617	2150.	0.00				
18.6320	4.3055	-3767709.	-47852.	0.00127	2733.	1.20E+12
-402.510	2151.	0.00				
18.7680	4.3075	-3846339.	-48511.	0.00127	2790.	1.20E+12
-405.405	2151.	0.00				
18.9040	4.3096	-3926049.	-49175.	0.00126	2848.	1.20E+12
-408.305	2152.	0.00				
19.0400	4.3117	-4006846.	-49844.	0.00126	2906.	1.20E+12
-411.208	2153.	0.00				
19.1760	4.3137	-4088738.	-50517.	0.00125	2966.	1.20E+12
-414.114	2154.	0.00				
19.3120	4.3157	-4171734.	-51195.	0.00125	3026.	1.20E+12
-417.024	2156.	0.00				
19.4480	4.3178	-4255840.	-51878.	0.00124	3087.	1.20E+12
-419.937	2157.	0.00				
19.5840	4.3198	-4341064.	-52566.	0.00123	3149.	1.20E+12
-422.853	2158.	0.00				
19.7200	4.3218	-4427415.	-53258.	0.00123	3211.	1.20E+12
-425.772	2159.	0.00				
19.8560	4.3238	-4514900.	-53956.	0.00122	3275.	1.20E+12
-428.694	2161.	0.00				
19.9920	4.3258	-4603526.	-54658.	0.00122	3339.	1.20E+12
-431.619	2162.	0.00				
20.1280	4.3278	-4693302.	-55364.	0.00121	3404.	1.20E+12
-434.547	2164.	0.00				
20.2640	4.3297	-4784236.	-56076.	0.00120	3470.	1.20E+12
-437.477	2165.	0.00				
20.4000	4.3317	-4876335.	-56792.	0.00120	3537.	1.20E+12
-440.410	2167.	0.00				
20.5360	4.3336	-4969606.	-57514.	0.00119	3604.	1.20E+12
-443.345	2169.	0.00				
20.6720	4.3356	-5064059.	-58239.	0.00118	3673.	1.20E+12
-446.283	2171.	0.00				
20.8080	4.3375	-5159700.	-58970.	0.00118	3742.	1.20E+12
-449.223	2172.	0.00				
20.9440	4.3394	-5256538.	-59706.	0.00117	3812.	1.20E+12

-452.166	2174.	0.00				
21.0800	4.3413	-5354580.	-60446.	0.00116	3884.	1.20E+12
-455.110	2176.	0.00				
21.2160	4.3432	-5453834.	-61191.	0.00115	3956.	1.20E+12
-458.056	2178.	0.00				
21.3520	4.3451	-5554308.	-61941.	0.00115	4028.	1.20E+12
-461.005	2180.	0.00				
21.4880	4.3469	-5656010.	-62696.	0.00114	4102.	1.20E+12
-463.954	2183.	0.00				
21.6240	4.3488	-5758947.	-63456.	0.00113	4177.	1.20E+12
-466.906	2185.	0.00				
21.7600	4.3506	-5863129.	-64220.	0.00112	4252.	1.20E+12
-469.859	2187.	0.00				
21.8960	4.3524	-5968561.	-64989.	0.00111	4329.	1.20E+12
-472.813	2189.	0.00				
22.0320	4.3543	-6075253.	-65763.	0.00111	4406.	1.20E+12
-475.769	2192.	0.00				
22.1680	4.3561	-6183212.	-66542.	0.00110	4485.	1.20E+12
-478.726	2194.	0.00				
22.3040	4.3578	-6292446.	-67326.	0.00109	4564.	1.20E+12
-481.683	2197.	0.00				
22.4400	4.3596	-6402964.	-68114.	0.00108	4644.	1.20E+12
-484.642	2199.	0.00				
22.5760	4.3614	-6514771.	-68908.	0.00107	4725.	1.20E+12
-487.601	2202.	0.00				
22.7120	4.3631	-6627878.	-69706.	0.00106	4807.	1.20E+12
-490.561	2205.	0.00				
22.8480	4.3648	-6742291.	-70509.	0.00105	4890.	1.20E+12
-493.521	2208.	0.00				
22.9840	4.3666	-6858019.	-71317.	0.00105	4974.	1.20E+12
-496.482	2210.	0.00				
23.1200	4.3683	-6975069.	-72129.	0.00104	5059.	1.20E+12
-499.443	2213.	0.00				
23.2560	4.3699	-7093449.	-72947.	0.00103	5145.	1.20E+12
-502.403	2216.	0.00				
23.3920	4.3716	-7213167.	-73769.	0.00102	5232.	1.20E+12
-505.364	2219.	0.00				
23.5280	4.3733	-7334232.	-74596.	0.00101	5319.	1.20E+12
-508.324	2223.	0.00				
23.6640	4.3749	-7456650.	-75428.	9.96E-04	5408.	1.20E+12
-511.284	2226.	0.00				
23.8000	4.3765	-7580430.	-76265.	9.86E-04	5498.	1.20E+12
-514.244	2229.	0.00				
23.9360	4.3781	-7705579.	-77107.	9.76E-04	5589.	1.20E+12
-517.202	2232.	0.00				
24.0720	4.3797	-7832107.	-77953.	9.65E-04	5681.	1.20E+12
-520.160	2236.	0.00				
24.2080	4.3813	-7960019.	-78805.	9.55E-04	5773.	1.20E+12
-523.116	2239.	0.00				
24.3440	4.3828	-8089325.	-79661.	9.44E-04	5867.	1.20E+12

-526.072	2243.	0.00				
24.4800	4.3843	-8220032.	-80522.	9.33E-04	5962.	1.20E+12
-529.026	2246.	0.00				
24.6160	4.3858	-8352148.	-81388.	9.21E-04	6058.	1.20E+12
-531.978	2250.	0.00				
24.7520	4.3873	-8485681.	-82258.	9.10E-04	6155.	1.20E+12
-534.928	2254.	0.00				
24.8880	4.3888	-8620638.	-83134.	8.98E-04	6252.	1.20E+12
-537.877	2258.	0.00				
25.0240	4.3903	-8757029.	-84014.	8.86E-04	6351.	1.20E+12
-540.824	2262.	0.00				
25.1600	4.3917	-8894859.	-84899.	8.74E-04	6451.	1.20E+12
-543.768	2266.	0.00				
25.2960	4.3931	-9034138.	-85789.	8.62E-04	6552.	1.20E+12
-546.709	2270.	0.00				
25.4320	4.3945	-9174873.	-86683.	8.50E-04	6654.	1.20E+12
-549.648	2274.	0.00				
25.5680	4.3959	-9317072.	-87583.	8.37E-04	6758.	1.20E+12
-552.584	2278.	0.00				
25.7040	4.3973	-9460743.	-88487.	8.24E-04	6862.	1.20E+12
-555.517	2282.	0.00				
25.8400	4.3986	-9605893.	-89396.	8.11E-04	6967.	1.20E+12
-558.447	2287.	0.00				
25.9760	4.3999	-9752531.	-90310.	7.98E-04	7073.	1.20E+12
-561.373	2291.	0.00				
26.1120	4.4012	-9900664.	-91228.	7.85E-04	7181.	1.20E+12
-564.295	2295.	0.00				
26.2480	4.4025	-1.01E+07	-92151.	7.71E-04	7289.	1.20E+12
-567.214	2300.	0.00				
26.3840	4.4037	-1.02E+07	-93080.	7.58E-04	7399.	1.20E+12
-570.128	2305.	0.00				
26.5200	4.4049	-1.04E+07	-94012.	7.44E-04	7510.	1.20E+12
-573.038	2309.	0.00				
26.6560	4.4061	-1.05E+07	-94950.	7.29E-04	7622.	1.20E+12
-575.944	2314.	0.00				
26.7920	4.4073	-1.07E+07	-95892.	7.15E-04	7734.	1.20E+12
-578.844	2319.	0.00				
26.9280	4.4085	-1.08E+07	-96839.	7.00E-04	7849.	1.20E+12
-581.739	2324.	0.00				
27.0640	4.4096	-1.10E+07	-97791.	6.86E-04	7964.	1.20E+12
-584.630	2329.	0.00				
27.2000	4.4107	-1.11E+07	-98748.	6.70E-04	8080.	1.20E+12
-587.514	2335.	0.00				
27.3360	4.4118	-1.13E+07	-99709.	6.55E-04	8197.	1.20E+12
-590.393	2340.	0.00				
27.4720	4.4129	-1.15E+07	-100675.	6.40E-04	8316.	1.20E+12
-593.266	2345.	0.00				
27.6080	4.4139	-1.16E+07	-101645.	6.24E-04	8436.	1.20E+12
-596.132	2351.	0.00				
27.7440	4.4149	-1.18E+07	-102620.	6.08E-04	8557.	1.20E+12

-598.992	2356.	0.00				
27.8800	4.4159	-1.20E+07	-103600.	5.92E-04	8679.	1.20E+12
-601.845	2362.	0.00				
28.0160	4.4168	-1.21E+07	-104585.	5.76E-04	8802.	1.20E+12
-604.691	2368.	0.00				
28.1520	4.4177	-1.23E+07	-105574.	5.59E-04	8926.	1.20E+12
-607.529	2373.	0.00				
28.2880	4.4186	-1.25E+07	-106568.	5.42E-04	9052.	1.20E+12
-610.360	2379.	0.00				
28.4240	4.4195	-1.27E+07	-107566.	5.25E-04	9179.	1.20E+12
-613.183	2385.	0.00				
28.5600	4.4204	-1.28E+07	-108569.	5.08E-04	9307.	1.20E+12
-615.998	2392.	0.00				
28.6960	4.4212	-1.30E+07	-109577.	4.90E-04	9436.	1.20E+12
-618.804	2398.	0.00				
28.8320	4.4220	-1.32E+07	-110589.	4.72E-04	9566.	1.20E+12
-621.601	2404.	0.00				
28.9680	4.4227	-1.34E+07	-111606.	4.54E-04	9697.	1.20E+12
-624.390	2411.	0.00				
29.1040	4.4234	-1.36E+07	-112627.	4.36E-04	9830.	1.20E+12
-627.168	2417.	0.00				
29.2400	4.4241	-1.37E+07	-113653.	4.17E-04	9964.	1.20E+12
-629.937	2424.	0.00				
29.3760	4.4248	-1.39E+07	-114683.	3.98E-04	10099.	1.20E+12
-632.696	2431.	0.00				
29.5120	4.4254	-1.41E+07	-115718.	3.79E-04	10236.	1.20E+12
-635.445	2438.	0.00				
29.6480	4.4260	-1.43E+07	-116757.	3.60E-04	10373.	1.20E+12
-638.182	2445.	0.00				
29.7840	4.4266	-1.45E+07	-117801.	3.40E-04	10512.	1.20E+12
-640.909	2452.	0.00				
29.9200	4.4272	-1.47E+07	-118849.	3.21E-04	10652.	1.20E+12
-643.624	2459.	0.00				
30.0560	4.4277	-1.49E+07	-119902.	3.00E-04	10793.	1.20E+12
-646.327	2466.	0.00				
30.1920	4.4281	-1.51E+07	-120959.	2.80E-04	10936.	1.20E+12
-649.018	2474.	0.00				
30.3280	4.4286	-1.53E+07	-122020.	2.59E-04	11080.	1.20E+12
-651.697	2482.	0.00				
30.4640	4.4290	-1.55E+07	-123086.	2.39E-04	11225.	1.20E+12
-654.362	2489.	0.00				
30.6000	4.4294	-1.57E+07	-124156.	2.17E-04	11371.	1.20E+12
-657.014	2497.	0.00				
30.7360	4.4297	-1.59E+07	-125230.	1.96E-04	11519.	1.20E+12
-659.653	2505.	0.00				
30.8720	4.4300	-1.61E+07	-126309.	1.74E-04	11668.	1.20E+12
-662.277	2514.	0.00				
31.0080	4.4303	-1.63E+07	-127392.	1.52E-04	11818.	1.20E+12
-664.887	2522.	0.00				
31.1440	4.4305	-1.65E+07	-128479.	1.30E-04	11969.	1.20E+12

-667.482	2530.	0.00				
31.2800	4.4307	-1.67E+07	-129571.	1.07E-04	12122.	1.20E+12
-670.061	2539.	0.00				
31.4160	4.4308	-1.69E+07	-130666.	8.43E-05	12276.	1.20E+12
-672.625	2548.	0.00				
31.5520	4.4310	-1.71E+07	-131766.	6.12E-05	12431.	1.20E+12
-675.172	2557.	0.00				
31.6880	4.4310	-1.74E+07	-132870.	3.77E-05	12588.	1.20E+12
-677.703	2566.	0.00				
31.8240	4.4311	-1.76E+07	-133978.	1.39E-05	12746.	1.20E+12
-680.216	2575.	0.00				
31.9600	4.4311	-1.78E+07	-135090.	-1.01E-05	12905.	1.20E+12
-682.712	2585.	0.00				
32.0960	4.4310	-1.80E+07	-136206.	-3.45E-05	13066.	1.20E+12
-685.190	2594.	0.00				
32.2320	4.4310	-1.82E+07	-137327.	-5.91E-05	13227.	1.20E+12
-687.649	2604.	0.00				
32.3680	4.4309	-1.85E+07	-138451.	-8.41E-05	13391.	1.20E+12
-690.089	2614.	0.00				
32.5040	4.4307	-1.87E+07	-139579.	-1.09E-04	13555.	1.20E+12
-692.509	2624.	0.00				
32.6400	4.4305	-1.89E+07	-140711.	-1.35E-04	13721.	1.20E+12
-694.909	2634.	0.00				
32.7760	4.4303	-1.91E+07	-141847.	-1.61E-04	13888.	1.20E+12
-697.288	2645.	0.00				
32.9120	4.4300	-1.94E+07	-142987.	-1.87E-04	14057.	1.20E+12
-699.646	2656.	0.00				
33.0480	4.4296	-1.96E+07	-144131.	-2.14E-04	14227.	1.20E+12
-701.983	2666.	0.00				
33.1840	4.4293	-1.99E+07	-145278.	-2.40E-04	14398.	1.20E+12
-704.296	2678.	0.00				
33.3200	4.4289	-2.01E+07	-146430.	-2.68E-04	14571.	1.20E+12
-706.587	2689.	0.00				
33.4560	4.4284	-2.03E+07	-147585.	-2.95E-04	14745.	1.20E+12
-708.855	2700.	0.00				
33.5920	4.4279	-2.06E+07	-148743.	-3.23E-04	14920.	1.20E+12
-711.098	2712.	0.00				
33.7280	4.4273	-2.08E+07	-149906.	-3.51E-04	15097.	1.20E+12
-713.316	2724.	0.00				
33.8640	4.4268	-2.11E+07	-151072.	-3.80E-04	15275.	1.20E+12
-715.508	2736.	0.00				
34.0000	4.4261	-2.13E+07	-152241.	-4.08E-04	15454.	1.20E+12
-717.675	2749.	0.00				
34.1360	4.4254	-2.16E+07	-153414.	-4.38E-04	15635.	1.20E+12
-719.815	2761.	0.00				
34.2720	4.4247	-2.18E+07	-154590.	-4.67E-04	15818.	1.20E+12
-721.927	2774.	0.00				
34.4080	4.4239	-2.21E+07	-155770.	-4.97E-04	16001.	1.20E+12
-724.011	2787.	0.00				
34.5440	4.4231	-2.23E+07	-156954.	-5.27E-04	16186.	1.20E+12

-726.066	2801.	0.00				
34.6800	4.4222	-2.26E+07	-158140.	-5.58E-04	16373.	1.20E+12
-728.091	2815.	0.00				
34.8160	4.4212	-2.28E+07	-159330.	-5.88E-04	16561.	1.20E+12
-730.086	2829.	0.00				
34.9520	4.4203	-2.31E+07	-160523.	-6.20E-04	16750.	1.20E+12
-732.050	2843.	0.00				
35.0880	4.4192	-2.34E+07	-161719.	-6.51E-04	16941.	1.20E+12
-733.981	2857.	0.00				
35.2240	4.4181	-2.36E+07	-162919.	-6.83E-04	17133.	1.20E+12
-735.880	2872.	0.00				
35.3600	4.4170	-2.39E+07	-164121.	-7.16E-04	17326.	1.20E+12
-737.745	2887.	0.00				
35.4960	4.4158	-2.42E+07	-165327.	-7.48E-04	17521.	1.20E+12
-739.576	2903.	0.00				
35.6320	4.4145	-2.44E+07	-166535.	-7.81E-04	17718.	1.20E+12
-741.371	2919.	0.00				
35.7680	4.4132	-2.47E+07	-167747.	-8.15E-04	17916.	1.20E+12
-743.130	2935.	0.00				
35.9040	4.4119	-2.50E+07	-168961.	-8.49E-04	18115.	1.20E+12
-744.851	2951.	0.00				
36.0400	4.4105	-2.53E+07	-170178.	-8.83E-04	18316.	1.20E+12
-746.534	2968.	0.00				
36.1760	4.4090	-2.55E+07	-171397.	-9.17E-04	18518.	1.20E+12
-748.178	2985.	0.00				
36.3120	4.4075	-2.58E+07	-172620.	-9.52E-04	18721.	1.20E+12
-749.782	3003.	0.00				
36.4480	4.4059	-2.61E+07	-173844.	-9.88E-04	18926.	1.20E+12
-749.871	3015.	0.00				
36.5840	4.4043	-2.64E+07	-175067.	-0.00102	19133.	1.20E+12
-749.759	3027.	0.00				
36.7200	4.4026	-2.67E+07	-176291.	-0.00106	19341.	1.20E+12
-749.605	3039.	0.00				
36.8560	4.4008	-2.70E+07	-177514.	-0.00110	19550.	1.20E+12
-749.409	3052.	0.00				
36.9920	4.3990	-2.72E+07	-178737.	-0.00113	19761.	1.20E+12
-749.169	3064.	0.00				
37.1280	4.3971	-2.75E+07	-179959.	-0.00117	19973.	1.20E+12
-748.885	3078.	0.00				
37.2640	4.3952	-2.78E+07	-181181.	-0.00121	20187.	1.20E+12
-748.556	3092.	0.00				
37.4000	4.3932	-2.81E+07	-182402.	-0.00125	20402.	1.20E+12
-748.181	3106.	0.00				
37.5360	4.3911	-2.84E+07	-183623.	-0.00128	20619.	1.20E+12
-747.759	3120.	0.00				
37.6720	4.3890	-2.87E+07	-184843.	-0.00132	20837.	1.20E+12
-747.289	3135.	0.00				
37.8080	4.3868	-2.90E+07	-186062.	-0.00136	21057.	1.20E+12
-746.769	3151.	0.00				
37.9440	4.3845	-2.93E+07	-187280.	-0.00140	21278.	1.20E+12

-746.199	3167.	0.00				
38.0800	4.3822	-2.96E+07	-188498.	-0.00144	21500.	1.20E+12
-745.578	3184.	0.00				
38.2160	4.3798	-3.00E+07	-189714.	-0.00148	21724.	1.20E+12
-744.904	3201.	0.00				
38.3520	4.3774	-3.03E+07	-190929.	-0.00152	21949.	1.20E+12
-744.176	3218.	0.00				
38.4880	4.3748	-3.06E+07	-192143.	-0.00156	22176.	1.20E+12
-743.392	3237.	0.00				
38.6240	4.3723	-3.09E+07	-193355.	-0.00161	22404.	1.20E+12
-742.552	3255.	0.00				
38.7600	4.3696	-3.12E+07	-194567.	-0.00165	22634.	1.20E+12
-741.655	3275.	0.00				
38.8960	4.3669	-3.15E+07	-195776.	-0.00169	22865.	1.20E+12
-740.697	3295.	0.00				
39.0320	4.3641	-3.18E+07	-196984.	-0.00173	23097.	1.20E+12
-739.680	3316.	0.00				
39.1680	4.3612	-3.22E+07	-198190.	-0.00178	23331.	1.20E+12
-738.599	3337.	0.00				
39.3040	4.3583	-3.25E+07	-199395.	-0.00182	23566.	1.20E+12
-737.455	3359.	0.00				
39.4400	4.3553	-3.28E+07	-200597.	-0.00187	23803.	1.20E+12
-736.245	3382.	0.00				
39.5760	4.3522	-3.31E+07	-201798.	-0.00191	24041.	1.20E+12
-734.968	3406.	0.00				
39.7120	4.3490	-3.35E+07	-202996.	-0.00196	24281.	1.20E+12
-733.622	3430.	0.00				
39.8480	4.3458	-3.38E+07	-204192.	-0.00200	24522.	1.20E+12
-732.205	3456.	0.00				
39.9840	4.3425	-3.41E+07	-205386.	-0.00205	24764.	1.20E+12
-730.715	3482.	0.00				
40.1200	4.3391	-3.45E+07	-206577.	-0.00210	25008.	1.20E+12
-729.150	3509.	0.00				
40.2560	4.3356	-3.48E+07	-207766.	-0.00214	25253.	1.20E+12
-727.508	3537.	0.00				
40.3920	4.3321	-3.52E+07	-208952.	-0.00219	25500.	1.20E+12
-725.787	3567.	0.00				
40.5280	4.3285	-3.55E+07	-210135.	-0.00224	25748.	1.20E+12
-723.984	3597.	0.00				
40.6640	4.3248	-3.58E+07	-211315.	-0.00229	25997.	1.20E+12
-722.097	3628.	0.00				
40.8000	4.3210	-3.62E+07	-212492.	-0.00234	26248.	1.20E+12
-720.124	3661.	0.00				
40.9360	4.3172	-3.65E+07	-213665.	-0.00239	26500.	1.20E+12
-718.061	3695.	0.00				
41.0720	4.3132	-3.69E+07	-214836.	-0.00244	26754.	1.20E+12
-715.906	3730.	0.00				
41.2080	4.3092	-3.72E+07	-216002.	-0.00249	27009.	1.20E+12
-713.656	3766.	0.00				
41.3440	4.3051	-3.76E+07	-217165.	-0.00254	27265.	1.20E+12

-711.308	3804.	0.00				
41.4800	4.3009	-3.79E+07	-218324.	-0.00259	27523.	1.20E+12
-708.859	3844.	0.00				
41.6160	4.2967	-3.83E+07	-219478.	-0.00264	27782.	1.20E+12
-706.305	3885.	0.00				
41.7520	4.2923	-3.87E+07	-220629.	-0.00269	28042.	1.20E+12
-703.643	3928.	0.00				
41.8880	4.2879	-3.90E+07	-221775.	-0.00275	28304.	1.20E+12
-700.868	3973.	0.00				
42.0240	4.2834	-3.94E+07	-222916.	-0.00280	28567.	1.20E+12
-697.976	4020.	0.00				
42.1600	4.2788	-3.98E+07	-224053.	-0.00285	28832.	1.20E+12
-694.964	4069.	0.00				
42.2960	4.2741	-4.01E+07	-225185.	-0.00291	29098.	1.20E+12
-691.827	4120.	0.00				
42.4320	4.2693	-4.05E+07	-226311.	-0.00296	29365.	1.20E+12
-688.560	4173.	0.00				
42.5680	4.2644	-4.09E+07	-227432.	-0.00302	29634.	1.20E+12
-685.157	4229.	0.00				
42.7040	4.2594	-4.12E+07	-228547.	-0.00307	29903.	1.20E+12
-681.614	4288.	0.00				
42.8400	4.2544	-4.16E+07	-229657.	-0.00313	30175.	1.20E+12
-677.923	4350.	0.00				
42.9760	4.2492	-4.20E+07	-230760.	-0.00319	30447.	1.20E+12
-674.080	4414.	0.00				
43.1120	4.2440	-4.24E+07	-231857.	-0.00324	30721.	1.20E+12
-670.076	4482.	0.00				
43.2480	4.2386	-4.27E+07	-232947.	-0.00330	30996.	1.20E+12
-665.906	4554.	0.00				
43.3840	4.2332	-4.31E+07	-234030.	-0.00336	31272.	1.20E+12
-661.560	4630.	0.00				
43.5200	4.2277	-4.35E+07	-235106.	-0.00342	31550.	1.20E+12
-657.030	4710.	0.00				
43.6560	4.2220	-4.39E+07	-236175.	-0.00348	31829.	1.20E+12
-652.308	4795.	0.00				
43.7920	4.2163	-4.43E+07	-237235.	-0.00354	32109.	1.20E+12
-647.383	4884.	0.00				
43.9280	4.2105	-4.47E+07	-238287.	-0.00360	32391.	1.20E+12
-642.245	4980.	0.00				
44.0640	4.2046	-4.50E+07	-239331.	-0.00366	32673.	1.20E+12
-636.881	5081.	0.00				
44.2000	4.1985	-4.54E+07	-240366.	-0.00372	32957.	1.20E+12
-631.278	5189.	0.00				
44.3360	4.1924	-4.58E+07	-241392.	-0.00378	33242.	1.20E+12
-625.423	5305.	0.00				
44.4720	4.1862	-4.62E+07	-242407.	-0.00385	33529.	1.20E+12
-619.299	5428.	0.00				
44.6080	4.1799	-4.66E+07	-243413.	-0.00391	33816.	1.20E+12
-612.890	5561.	0.00				
44.7440	4.1734	-4.70E+07	-244407.	-0.00397	34105.	1.20E+12

-606.175	5704.	0.00				
44.8800	4.1669	-4.74E+07	-245391.	-0.00404	34395.	1.20E+12
-599.133	5859.	0.00				
45.0160	4.1603	-4.78E+07	-246363.	-0.00410	34686.	1.20E+12
-591.740	6026.	0.00				
45.1520	4.1535	-4.82E+07	-247322.	-0.00417	34978.	1.20E+12
-583.967	6208.	0.00				
45.2880	4.1467	-4.86E+07	-248268.	-0.00423	35271.	1.20E+12
-575.785	6407.	0.00				
45.4240	4.1397	-4.90E+07	-249201.	-0.00430	35566.	1.20E+12
-567.158	6626.	0.00				
45.5600	4.1326	-4.94E+07	-250119.	-0.00437	35861.	1.20E+12
-558.043	6867.	0.00				
45.6960	4.1254	-4.99E+07	-251022.	-0.00443	36158.	1.20E+12
-548.393	7134.	0.00				
45.8320	4.1182	-5.03E+07	-251909.	-0.00450	36455.	1.20E+12
-538.153	7433.	0.00				
45.9680	4.1108	-5.07E+07	-252778.	-0.00457	36754.	1.20E+12
-527.254	7769.	0.00				
46.1040	4.1032	-5.11E+07	-253629.	-0.00464	37054.	1.20E+12
-515.618	8151.	0.00				
46.2400	4.0956	-5.15E+07	-254460.	-0.00471	37355.	1.20E+12
-503.147	8589.	0.00				
46.3760	4.0879	-5.19E+07	-255271.	-0.00478	37656.	1.20E+12
-489.721	9096.	0.00				
46.5120	4.0800	-5.23E+07	-256058.	-0.00485	37959.	1.20E+12
-475.187	9693.	0.00				
46.6480	4.0720	-5.28E+07	-256821.	-0.00492	38262.	1.20E+12
-459.349	10407.	0.00				
46.7840	4.0639	-5.32E+07	-257556.	-0.00499	38567.	1.20E+12
-441.947	11280.	0.00				
46.9200	4.0557	-5.36E+07	-258261.	-0.00507	38872.	1.20E+12
-422.624	12376.	0.00				
47.0560	4.0474	-5.40E+07	-258933.	-0.00514	39178.	1.20E+12
-400.865	13801.	0.00				
47.1920	4.0390	-5.44E+07	-259567.	-0.00521	39485.	1.20E+12
-375.886	15748.	0.00				
47.3280	4.0304	-5.49E+07	-260157.	-0.00529	39793.	1.20E+12
-346.389	18605.	0.00				
47.4640	4.0217	-5.53E+07	-260692.	-0.00536	40101.	1.20E+12
-309.926	23316.	0.00				
47.6000	4.0129	-5.57E+07	-261158.	-0.00544	40410.	1.20E+12
-260.762	33044.	0.00				
47.7360	4.0039	-5.61E+07	-261514.	-0.00551	40719.	1.20E+12
-175.893	72839.	0.00				
47.8720	3.9949	-5.66E+07	-261501.	-0.00559	41029.	1.20E+12
192.2081	61249.	0.00				
48.0080	3.9857	-5.70E+07	-261050.	-0.00567	41338.	1.20E+12
360.9058	41161.	0.00				
48.1440	3.9764	-5.74E+07	-260352.	-0.00575	41647.	1.20E+12

494.4862	34160.	0.00				
48.2800	3.9669	-5.78E+07	-259448.	-0.00582	41955.	1.20E+12
612.7741	30244.	0.00				
48.4160	3.9574	-5.83E+07	-258359.	-0.00590	42261.	1.20E+12
722.3758	27650.	0.00				
48.5520	3.9477	-5.87E+07	-257095.	-0.00598	42566.	1.20E+12
826.4326	25771.	0.00				
48.6880	3.9378	-5.91E+07	-255664.	-0.00606	42870.	1.20E+12
926.7343	24329.	0.00				
48.8240	3.9279	-5.95E+07	-254072.	-0.00614	43172.	1.20E+12
1024.	23179.	0.00				
48.9600	3.9178	-5.99E+07	-252322.	-0.00623	43471.	1.20E+12
1120.	22236.	0.00				
49.0960	3.9076	-6.03E+07	-250417.	-0.00631	43769.	1.20E+12
1215.	21445.	0.00				
49.2320	3.8972	-6.08E+07	-248358.	-0.00639	44064.	1.20E+12
1308.	20771.	0.00				
49.3680	3.8867	-6.12E+07	-246146.	-0.00647	44357.	1.20E+12
1402.	20189.	0.00				
49.5040	3.8761	-6.16E+07	-243783.	-0.00656	44647.	1.20E+12
1494.	19680.	0.00				
49.6400	3.8653	-6.20E+07	-241268.	-0.00664	44934.	1.20E+12
1587.	19230.	0.00				
49.7760	3.8544	-6.23E+07	-238602.	-0.00672	45218.	1.20E+12
1680.	18831.	0.00				
49.9120	3.8433	-6.27E+07	-235784.	-0.00681	45499.	1.20E+12
1773.	18473.	0.00				
50.0480	3.8322	-6.31E+07	-232814.	-0.00690	45776.	1.20E+12
1867.	18151.	0.00				
50.1840	3.8208	-6.35E+07	-229691.	-0.00698	46050.	1.20E+12
1961.	17859.	0.00				
50.3200	3.8094	-6.39E+07	-226414.	-0.00707	46320.	1.20E+12
2055.	17594.	0.00				
50.4560	3.7978	-6.42E+07	-222983.	-0.00716	46586.	1.20E+12
2150.	17352.	0.00				
50.5920	3.7860	-6.46E+07	-219395.	-0.00724	46848.	1.20E+12
2246.	17130.	0.00				
50.7280	3.7741	-6.49E+07	-215651.	-0.00733	47105.	1.20E+12
2343.	16926.	0.00				
50.8640	3.7621	-6.53E+07	-211749.	-0.00742	47358.	1.20E+12
2440.	16738.	0.00				
51.0000	3.7499	-6.56E+07	-207686.	-0.00751	47607.	1.20E+12
2538.	16564.	0.00				
51.1360	3.7376	-6.60E+07	-203463.	-0.00760	47850.	1.20E+12
2637.	16403.	0.00				
51.2720	3.7251	-6.63E+07	-199077.	-0.00769	48088.	1.20E+12
2738.	16254.	0.00				
51.4080	3.7125	-6.66E+07	-194526.	-0.00778	48321.	1.20E+12
2839.	16115.	0.00				
51.5440	3.6997	-6.69E+07	-189810.	-0.00787	48549.	1.20E+12

2941.	15985.	0.00				
51.6800	3.6868	-6.72E+07	-184925.	-0.00796	48771.	1.20E+12
3045.	15865.	0.00				
51.8160	3.6737	-6.75E+07	-179871.	-0.00805	48987.	1.20E+12
3149.	15752.	0.00				
51.9520	3.6605	-6.78E+07	-174646.	-0.00814	49196.	1.20E+12
3255.	15647.	0.00				
52.0880	3.6472	-6.81E+07	-169247.	-0.00824	49400.	1.20E+12
3362.	15548.	0.00				
52.2240	3.6336	-6.84E+07	-163673.	-0.00833	49597.	1.20E+12
3470.	15456.	0.00				
52.3600	3.6200	-6.86E+07	-157921.	-0.00842	49787.	1.20E+12
3579.	15369.	0.00				
52.4960	3.6061	-6.89E+07	-151990.	-0.00852	49971.	1.20E+12
3689.	15288.	0.00				
52.6320	3.5922	-6.91E+07	-145877.	-0.00861	50147.	1.20E+12
3801.	15212.	0.00				
52.7680	3.5780	-6.94E+07	-139581.	-0.00870	50316.	1.20E+12
3915.	15140.	0.00				
52.9040	3.5638	-6.96E+07	-133099.	-0.00880	50478.	1.20E+12
4029.	15073.	0.00				
53.0400	3.5493	-6.98E+07	-126429.	-0.00889	50631.	1.20E+12
4145.	15009.	0.00				
53.1760	3.5347	-7.00E+07	-119569.	-0.00899	50777.	1.20E+12
4262.	14950.	0.00				
53.3120	3.5200	-7.02E+07	-112517.	-0.00909	50914.	1.19E+12
4381.	14894.	0.00				
53.4480	3.5051	-7.04E+07	-105269.	-0.00918	51043.	1.19E+12
4501.	14841.	0.00				
53.5840	3.4900	-7.05E+07	-97824.	-0.00928	51164.	1.19E+12
4622.	14792.	0.00				
53.7200	3.4748	-7.07E+07	-90180.	-0.00937	51275.	1.19E+12
4745.	14745.	0.00				
53.8560	3.4594	-7.08E+07	-82334.	-0.00947	51377.	1.19E+12
4870.	14702.	0.00				
53.9920	3.4439	-7.10E+07	-74284.	-0.00957	51470.	1.19E+12
4996.	14661.	0.00				
54.1280	3.4282	-7.11E+07	-66027.	-0.00967	51553.	1.19E+12
5123.	14622.	0.00				
54.2640	3.4123	-7.12E+07	-57560.	-0.00976	51626.	1.19E+12
5252.	14586.	0.00				
54.4000	3.3963	-7.13E+07	-48882.	-0.00986	51689.	1.19E+12
5383.	14552.	0.00				
54.5360	3.3801	-7.13E+07	-39989.	-0.00996	51742.	1.19E+12
5515.	14520.	0.00				
54.6720	3.3638	-7.14E+07	-30879.	-0.01006	51784.	1.19E+12
5649.	14490.	0.00				
54.8080	3.3473	-7.14E+07	-21550.	-0.01015	51815.	1.19E+12
5784.	14462.	0.00				
54.9440	3.3307	-7.15E+07	-11999.	-0.01025	51835.	1.19E+12

5921.	14437.	0.00				
55.0800	3.3138	-7.15E+07	-2223.	-0.01035	51843.	1.19E+12
6059.	14412.	0.00				
55.2160	3.2969	-7.15E+07	7781.	-0.01045	51840.	1.19E+12
6200.	14390.	0.00				
55.3520	3.2797	-7.15E+07	18014.	-0.01055	51825.	1.19E+12
6341.	14369.	0.00				
55.4880	3.2625	-7.14E+07	28480.	-0.01064	51798.	1.19E+12
6485.	14349.	0.00				
55.6240	3.2450	-7.14E+07	39182.	-0.01074	51758.	1.19E+12
6630.	14332.	0.00				
55.7600	3.2274	-7.13E+07	50123.	-0.01084	51705.	1.19E+12
6777.	14315.	0.00				
55.8960	3.2096	-7.12E+07	61304.	-0.01094	51639.	1.19E+12
6926.	14300.	0.00				
56.0320	3.1917	-7.11E+07	72729.	-0.01104	51560.	1.19E+12
7076.	14286.	0.00				
56.1680	3.1736	-7.10E+07	84401.	-0.01113	51467.	1.19E+12
7228.	14274.	0.00				
56.3040	3.1554	-7.08E+07	96322.	-0.01123	51360.	1.19E+12
7382.	14262.	0.00				
56.4400	3.1369	-7.06E+07	108495.	-0.01133	51239.	1.19E+12
7537.	14252.	0.00				
56.5760	3.1184	-7.05E+07	120924.	-0.01142	51103.	1.19E+12
7694.	14243.	0.00				
56.7120	3.0997	-7.03E+07	133611.	-0.01152	50952.	1.19E+12
7853.	14235.	0.00				
56.8480	3.0808	-7.00E+07	146558.	-0.01161	50787.	1.20E+12
8014.	14228.	0.00				
56.9840	3.0618	-6.98E+07	159770.	-0.01171	50606.	1.20E+12
8177.	14222.	0.00				
57.1200	3.0426	-6.95E+07	173248.	-0.01180	50409.	1.20E+12
8341.	14218.	0.00				
57.2560	3.0232	-6.92E+07	186996.	-0.01190	50195.	1.20E+12
8507.	14214.	0.00				
57.3920	3.0037	-6.89E+07	201017.	-0.01199	49966.	1.20E+12
8675.	14211.	0.00				
57.5280	2.9841	-6.86E+07	215313.	-0.01209	49720.	1.20E+12
8845.	14209.	0.00				
57.6640	2.9643	-6.82E+07	229889.	-0.01218	49456.	1.20E+12
9018.	14209.	0.00				
57.8000	2.9443	-6.78E+07	244749.	-0.01227	49175.	1.20E+12
9193.	14212.	0.00				
57.9360	2.9242	-6.74E+07	259897.	-0.01236	48877.	1.20E+12
9371.	14216.	0.00				
58.0720	2.9040	-6.70E+07	275338.	-0.01246	48560.	1.20E+12
9552.	14223.	0.00				
58.2080	2.8836	-6.65E+07	291076.	-0.01255	48225.	1.20E+12
9735.	14231.	0.00				
58.3440	2.8630	-6.60E+07	307116.	-0.01264	47871.	1.20E+12

9921.	14241.	0.00				
58.4800	2.8423	-6.55E+07	323462.	-0.01273	47498.	1.20E+12
10110.	14253.	0.00				
58.6160	2.8215	-6.49E+07	340118.	-0.01281	47105.	1.20E+12
10302.	14266.	0.00				
58.7520	2.8005	-6.44E+07	357090.	-0.01290	46693.	1.20E+12
10497.	14281.	0.00				
58.8880	2.7794	-6.38E+07	374382.	-0.01299	46260.	1.20E+12
10694.	14298.	0.00				
59.0240	2.7581	-6.32E+07	391998.	-0.01308	45806.	1.20E+12
10894.	14316.	0.00				
59.1600	2.7367	-6.25E+07	409943.	-0.01316	45332.	1.20E+12
11097.	14336.	0.00				
59.2960	2.7151	-6.18E+07	428222.	-0.01325	44836.	1.20E+12
11303.	14357.	0.00				
59.4320	2.6934	-6.11E+07	446839.	-0.01333	44318.	1.20E+12
11512.	14380.	0.00				
59.5680	2.6716	-6.04E+07	465800.	-0.01341	43778.	1.20E+12
11724.	14404.	0.00				
59.7040	2.6497	-5.96E+07	485109.	-0.01349	43215.	1.20E+12
11939.	14429.	0.00				
59.8400	2.6276	-5.88E+07	504770.	-0.01357	42630.	1.20E+12
12156.	14456.	0.00				
59.9760	2.6054	-5.79E+07	524790.	-0.01365	42020.	1.20E+12
12377.	14484.	0.00				
60.1120	2.5830	-5.71E+07	545172.	-0.01373	41387.	1.20E+12
12601.	14513.	0.00				
60.2480	2.5605	-5.62E+07	565922.	-0.01381	40730.	1.20E+12
12828.	14543.	0.00				
60.3840	2.5379	-5.52E+07	587044.	-0.01388	40048.	1.20E+12
13057.	14575.	0.00				
60.5200	2.5152	-5.42E+07	608543.	-0.01396	39340.	1.20E+12
13290.	14608.	0.00				
60.6560	2.4924	-5.32E+07	630425.	-0.01403	38607.	1.20E+12
13526.	14642.	0.00				
60.7920	2.4694	-5.22E+07	652693.	-0.01410	37848.	1.20E+12
13765.	14677.	0.00				
60.9280	2.4463	-5.11E+07	675355.	-0.01417	37062.	1.20E+12
14006.	14713.	0.00				
61.0640	2.4232	-5.00E+07	698413.	-0.01424	36249.	1.20E+12
14251.	14750.	0.00				
61.2000	2.3999	-4.88E+07	721874.	-0.01431	35408.	1.20E+12
14500.	14788.	0.00				
61.3360	2.3764	-4.76E+07	745742.	-0.01438	34540.	1.20E+12
14751.	14827.	0.00				
61.4720	2.3529	-4.64E+07	770022.	-0.01444	33643.	1.20E+12
15005.	14868.	0.00				
61.6080	2.3293	-4.51E+07	793946.	-0.01450	32717.	1.20E+12
14313.	15300.	0.00				
61.7440	2.3056	-4.38E+07	816530.	-0.01456	31763.	1.20E+12

13364.	15930.	0.00				
61.8800	2.2818	-4.24E+07	837555.	-0.01462	30784.	1.20E+12
12401.	16705.	0.00				
62.0160	2.2579	-4.11E+07	856998.	-0.01468	29781.	1.20E+12
11426.	17689.	0.00				
62.1520	2.2339	-3.96E+07	874826.	-0.01473	28755.	1.20E+12
10422.	18966.	0.00				
62.2880	2.2098	-3.82E+07	890945.	-0.01479	27710.	1.20E+12
9331.	20592.	0.00				
62.4240	2.1856	-3.67E+07	905188.	-0.01484	26646.	1.20E+12
8123.	22763.	0.00				
62.5600	2.1614	-3.53E+07	917328.	-0.01489	25567.	1.20E+12
6755.	25919.	0.00				
62.6960	2.1370	-3.37E+07	927033.	-0.01493	24474.	1.20E+12
5138.	31253.	0.00				
62.8320	2.1126	-3.22E+07	933698.	-0.01498	23372.	1.20E+12
3031.	44402.	0.00				
62.9680	2.0881	-3.07E+07	934826.	-0.01502	22264.	1.20E+12
-1649.	59192.	0.00				
63.1040	2.0636	-2.92E+07	929880.	-0.01506	21159.	1.20E+12
-4413.	35607.	0.00				
63.2400	2.0390	-2.77E+07	921142.	-0.01510	20063.	1.20E+12
-6295.	28620.	0.00				
63.3760	2.0143	-2.62E+07	909561.	-0.01514	18979.	1.20E+12
-7897.	24994.	0.00				
63.5120	1.9896	-2.47E+07	895497.	-0.01517	17910.	1.20E+12
-9339.	22672.	0.00				
63.6480	1.9648	-2.32E+07	879166.	-0.01520	16859.	1.20E+12
-10675.	21020.	0.00				
63.7840	1.9399	-2.18E+07	860717.	-0.01523	15828.	1.20E+12
-11935.	19769.	0.00				
63.9200	1.9151	-2.04E+07	840236.	-0.01526	14821.	1.20E+12
-13164.	18817.	0.00				
64.0560	1.8901	-1.91E+07	817737.	-0.01529	13839.	1.20E+12
-14408.	18114.	0.00				
64.1920	1.8651	-1.78E+07	793195.	-0.01532	12885.	1.20E+12
-15667.	17579.	0.00				
64.3280	1.8401	-1.65E+07	766587.	-0.01534	11961.	1.20E+12
-16941.	17164.	0.00				
64.4640	1.8151	-1.53E+07	737889.	-0.01536	11070.	1.20E+12
-18229.	16836.	0.00				
64.6000	1.7900	-1.41E+07	707903.	-0.01538	10215.	1.20E+12
-18518.	16884.	0.00				
64.7360	1.7649	-1.30E+07	677742.	-0.01540	9394.	1.20E+12
-18443.	17054.	0.00				
64.8720	1.7397	-1.19E+07	647707.	-0.01542	8610.	1.20E+12
-18365.	17227.	0.00				
65.0080	1.7146	-1.08E+07	617801.	-0.01543	7861.	1.20E+12
-18285.	17404.	0.00				
65.1440	1.6894	-9854777.	588028.	-0.01544	7148.	1.20E+12

-18202.	17584.	0.00				
65.2800	1.6642	-8919354.	558392.	-0.01546	6469.	1.20E+12
-18117.	17767.	0.00				
65.4160	1.6389	-8032186.	528896.	-0.01547	5826.	1.20E+12
-18030.	17954.	0.00				
65.5520	1.6137	-7193039.	499543.	-0.01548	5217.	1.20E+12
-17941.	18145.	0.00				
65.6880	1.5884	-6401677.	470338.	-0.01549	4643.	1.20E+12
-17849.	18339.	0.00				
65.8240	1.5631	-5657855.	441284.	-0.01550	4104.	1.20E+12
-17756.	18538.	0.00				
65.9600	1.5378	-4961324.	412386.	-0.01550	3598.	1.20E+12
-17660.	18741.	0.00				
66.0960	1.5125	-4311828.	383645.	-0.01551	3127.	1.20E+12
-17561.	18949.	0.00				
66.2320	1.4872	-3709106.	355067.	-0.01552	2690.	1.20E+12
-17461.	19161.	0.00				
66.3680	1.4619	-3152889.	326655.	-0.01552	2287.	1.20E+12
-17358.	19378.	0.00				
66.5040	1.4365	-2642903.	298413.	-0.01552	1917.	1.20E+12
-17253.	19601.	0.00				
66.6400	1.4112	-2178869.	270344.	-0.01553	1580.	1.20E+12
-17146.	19828.	0.00				
66.7760	1.3858	-1760501.	242451.	-0.01553	1277.	1.20E+12
-17036.	20062.	0.00				
66.9120	1.3605	-1387507.	214740.	-0.01553	1006.	1.20E+12
-16924.	20302.	0.00				
67.0480	1.3351	-1059590.	187213.	-0.01553	768.5066	1.20E+12
-16810.	20548.	0.00				
67.1840	1.3098	-776445.	159874.	-0.01554	563.1450	1.20E+12
-16694.	20800.	0.00				
67.3200	1.2844	-537761.	132727.	-0.01554	390.0313	1.20E+12
-16575.	21060.	0.00				
67.4560	1.2591	-343224.	105775.	-0.01554	248.9362	1.20E+12
-16454.	21327.	0.00				
67.5920	1.2337	-192511.	79023.	-0.01554	139.6259	1.20E+12
-16331.	21603.	0.00				
67.7280	1.2084	-85293.	52474.	-0.01554	61.8622	1.20E+12
-16205.	21886.	0.00				
67.8640	1.1830	-21237.	26132.	-0.01554	15.4027	1.20E+12
-16077.	22179.	0.00				
68.0000	1.1577	0.00	0.00	-0.01554	0.00	1.20E+12
-15947.	11241.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

Pile-head deflection = 3.98855822 inches
Computed slope at pile head = 0.00145504 radians
Maximum bending moment = -71479902. inch-lbs
Maximum shear force = 934826. lbs
Depth of maximum bending moment = 55.08000000 feet below pile head
Depth of maximum shear force = 62.96800000 feet below pile head
Number of iterations = 25
Number of zero deflection points = 0

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
No.		1	2				
		lbs	in-lbs	lbs	inches	radians	
1	V, lb	0.00	M, in-lb	0.00	3.9886	0.00146	
		934826.	-7.15E+07				

Maximum pile-head deflection = 3.9885582171 inches
Maximum pile-head rotation = 0.0014550442 radians = 0.083368 deg.

The analysis ended normally.

=====

LPILE for Windows, Version 2022-12.011

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:

\Shared\Projects\2023\23-163 IL 13 over Big Muddy River Slide_Jackson Co, IL\04 DBA
Analysis\LPILE\

Name of input data file:

60in x 0pt5in OEP Linear Clay 4in Move 66ft Slide.lp12d

Name of output report file:

60in x 0pt5in OEP Linear Clay 4in Move 66ft Slide.lp12o

Name of plot output file:

60in x 0pt5in OEP Linear Clay 4in Move 66ft Slide.lp12p

Name of runtime message file:

60in x 0pt5in OEP Linear Clay 4in Move 66ft Slide.lp12r

Date and Time of Analysis

Date: June 21, 2024

Time: 13:51:39

Problem Title

Project Name: IL-13 over Big Muddy Stabilization

Job Number: 23-106

Client: Oates / IDOT

Engineer: Andy Boeckmann

Description: Predict loads in large pipe piles from soil movement

Program Options and Settings

Computational Options:

- Conventional Analysis

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 500 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 500 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Analysis includes loading by one lateral soil movement profile acting on pile
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	68.000 ft
Depth of ground surface below top of pile	=	0.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	68.000	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a steel pipe pile

Length of section	=	68.000000 ft
Pile diameter	=	60.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	48.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Undrained cohesion at top of layer	=	600.000000 psf
Undrained cohesion at bottom of layer	=	975.000000 psf
Epsilon-50 at top of layer	=	0.015000
Epsilon-50 at bottom of layer	=	0.015000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	48.000000 ft
Distance from top of pile to bottom of layer	=	68.000000 ft
Effective unit weight at top of layer	=	62.600000 pcf
Effective unit weight at bottom of layer	=	62.600000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

(Depth of the lowest soil layer extends 0.000 ft below the pile tip)

Summary of Input Soil Properties

Layer E50 Num. or krm	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.
-----	-----	-----	-----	-----	-----

1	Soft	0.00	57.6000	600.0000	--
0.01500	--				
	Clay	48.0000	57.6000	975.0000	--
0.01500	--				
2	Sand	48.0000	62.6000	--	36.0000
--	60.0000				
	(Reese, et al.)	68.0000	62.6000	--	36.0000
--	60.0000				

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	0.000	0.8000	1.0000
2	68.000	0.8000	1.0000

Lateral Soil Movements Applied to All Load Cases

Profile of soil movement with depth defined using 4 points

Point No.	Depth X ft	Soil Movement in
1	0.00000	4.00000
2	64.50000	4.00000
3	67.50000	0.00000
4	68.00000	0.00000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition Run Analysis 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000
No		Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Steel Pipe Pile:

Length of Section	=	68.000000 ft
Outer Diameter of Pipe	=	60.000000 in
Pipe Wall Thickness	=	0.500000 in
Yield Stress of Pipe	=	50.000000 ksi
Elastic Modulus	=	29000. ksi
Cross-sectional Area	=	93.462381 sq. in.
Moment of Inertia	=	41363. in^4
Elastic Bending Stiffness	=	1.1995E+09 kip-in^2
Plastic Modulus, Z	=	1770. in^3

Plastic Moment Capacity = $F_y Z$ = 88508.in-kip

Axial Structural Capacities:

Nom. Axial Structural Capacity = $F_y A_s$ = 4673.119 kips

Nominal Axial Tensile Capacity = -4673.119 kips

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----
1	0.000

Definition of Run Messages:

Y = part of pipe section has yielded.

Axial Thrust Force = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Total Stress ksi	Run Msg
-----	-----	-----	-----	-----	----
0.00000122	1465.	1199596318.	30.0000000	1.0518750	
0.00000244	2930.	1199596318.	30.0000000	2.1037500	
0.00000366	4395.	1199596318.	30.0000000	3.1556250	
0.00000489	5860.	1199596318.	30.0000000	4.2075000	
0.00000611	7325.	1199596318.	30.0000000	5.2593750	
0.00000733	8790.	1199596318.	30.0000000	6.3112500	
0.00000855	10255.	1199596318.	30.0000000	7.3631250	
0.00000977	11720.	1199596318.	30.0000000	8.4150000	
0.00001099	13185.	1199596318.	30.0000000	9.4668750	
0.00001221	14650.	1199596318.	30.0000000	10.5187500	
0.00001343	16115.	1199596318.	30.0000000	11.5706250	
0.00001466	17580.	1199596318.	30.0000000	12.6225000	
0.00001588	19045.	1199596318.	30.0000000	13.6743750	
0.00001710	20510.	1199596318.	30.0000000	14.7262500	
0.00001832	21975.	1199596318.	30.0000000	15.7781251	
0.00001954	23440.	1199596318.	30.0000000	16.8300001	
0.00002076	24905.	1199596318.	30.0000000	17.8818751	
0.00002198	26370.	1199596318.	30.0000000	18.9337501	
0.00002320	27835.	1199596318.	30.0000000	19.9856251	
0.00002443	29300.	1199596318.	30.0000000	21.0375001	
0.00002565	30766.	1199596318.	30.0000000	22.0893751	

0.00002687	32231.	1199596318.	30.00000000	23.1412501	
0.00002809	33696.	1199596318.	30.00000000	24.1931251	
0.00002931	35161.	1199596318.	30.00000000	25.2450001	
0.00003053	36626.	1199596318.	30.00000000	26.2968751	
0.00003175	38091.	1199596318.	30.00000000	27.3487501	
0.00003297	39556.	1199596318.	30.00000000	28.4006251	
0.00003420	41021.	1199596318.	30.00000000	29.4525001	
0.00003542	42486.	1199596318.	30.00000000	30.5043751	
0.00003664	43951.	1199596318.	30.00000000	31.5562501	
0.00003786	45416.	1199596318.	30.00000000	32.6081251	
0.00003908	46881.	1199596318.	30.00000000	33.6600001	
0.00004030	48346.	1199596318.	30.00000000	34.7118751	
0.00004152	49811.	1199596318.	30.00000000	35.7637501	
0.00004274	51276.	1199596318.	30.00000000	36.8156251	
0.00004397	52741.	1199596318.	30.00000000	37.8675001	
0.00004519	54206.	1199596318.	30.00000000	38.9193751	
0.00004641	55671.	1199596318.	30.00000000	39.9712501	
0.00004763	57136.	1199596318.	30.00000000	41.0231251	
0.00005007	60066.	1199596318.	30.00000000	43.1268751	
0.00005251	62996.	1199596318.	30.00000000	45.2306252	
0.00005496	65926.	1199596318.	30.00000000	47.3343752	
0.00005740	68856.	1199596318.	30.00000000	49.4381252	
0.00005984	71288.	1191279473.	30.00000000	50.0000000	Y
0.00006228	73078.	1173287814.	30.00000000	50.0000000	Y
0.00006473	74537.	1151552961.	30.00000000	50.0000000	Y
0.00006717	75755.	1127810999.	30.00000000	50.0000000	Y
0.00006961	76804.	1103316610.	30.00000000	50.0000000	Y
0.00007205	77713.	1078531660.	30.00000000	50.0000000	Y
0.00007450	78518.	1053971423.	30.00000000	50.0000000	Y
0.00007694	79224.	1029687944.	30.00000000	50.0000000	Y
0.00007938	79852.	1005919969.	30.00000000	50.0000000	Y
0.00008182	80416.	982788886.	30.00000000	50.0000000	Y
0.00008427	80925.	960338709.	30.00000000	50.0000000	Y
0.00008671	81386.	938597060.	30.00000000	50.0000000	Y
0.00008915	81804.	917579048.	30.00000000	50.0000000	Y
0.00009159	82187.	897290169.	30.00000000	50.0000000	Y
0.00009404	82537.	877700556.	30.00000000	50.0000000	Y
0.00009648	82853.	858755814.	30.00000000	50.0000000	Y
0.00009892	83146.	840512485.	30.00000000	50.0000000	Y
0.0001014	83419.	822957992.	30.00000000	50.0000000	Y
0.0001038	83669.	806001443.	30.00000000	50.0000000	Y
0.0001062	83899.	789636230.	30.00000000	50.0000000	Y
0.0001087	84118.	773910157.	30.00000000	50.0000000	Y
0.0001111	84315.	758670547.	30.00000000	50.0000000	Y
0.0001136	84503.	744012063.	30.00000000	50.0000000	Y
0.0001160	84677.	729843567.	30.00000000	50.0000000	Y
0.0001185	84840.	716173588.	30.00000000	50.0000000	Y
0.0001209	84992.	702965200.	30.00000000	50.0000000	Y
0.0001233	85136.	690211856.	30.00000000	50.0000000	Y
0.0001258	85269.	677867953.	30.00000000	50.0000000	Y

0.0001282	85399.	665965496.	30.0000000	50.0000000	Y
0.0001307	85514.	654403210.	30.0000000	50.0000000	Y
0.0001331	85630.	643265228.	30.0000000	50.0000000	Y
0.0001356	85734.	632438240.	30.0000000	50.0000000	Y
0.0001380	85834.	621969532.	30.0000000	50.0000000	Y
0.0001404	85932.	611853771.	30.0000000	50.0000000	Y
0.0001429	86018.	601995994.	30.0000000	50.0000000	Y
0.0001453	86104.	592469570.	30.0000000	50.0000000	Y
0.0001551	86407.	557105806.	30.0000000	50.0000000	Y
0.0001649	86654.	525585353.	30.0000000	50.0000000	Y
0.0001746	86860.	497361850.	30.0000000	50.0000000	Y
0.0001844	87032.	471946810.	30.0000000	50.0000000	Y
0.0001942	87177.	448945821.	30.0000000	50.0000000	Y
0.0002040	87302.	428055302.	30.0000000	50.0000000	Y
0.0002137	87415.	409013675.	30.0000000	50.0000000	Y
0.0002235	87506.	391542335.	30.0000000	50.0000000	Y
0.0002333	87591.	375505283.	30.0000000	50.0000000	Y
0.0002430	87663.	360704423.	30.0000000	50.0000000	Y
0.0002528	87729.	347027873.	30.0000000	50.0000000	Y
0.0002626	87784.	334324718.	30.0000000	50.0000000	Y
0.0002723	87839.	322533000.	30.0000000	50.0000000	Y
0.0002821	87882.	311515746.	30.0000000	50.0000000	Y
0.0002919	87924.	301229606.	30.0000000	50.0000000	Y

Summary of Results for Nominal Moment Capacity for Section 1

Load No.	Axial Thrust kips	Nominal Moment Capacity in-kips
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1	0.00000000	87924.

Note that the values in the above table are not factored by a strength reduction factor for LRFD.

The value of the strength reduction factor depends on the provisions of the LRFD code being followed.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to the LRFD structural design standard being followed.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	No	0.00	1342857.
2	48.0000	25.0439	No	No	1342857.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Deflect. Soil Spr.	Bending Distrib. Moment	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X	y	Lat. Load					
Es*H							
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	3.9587	0.00240	6.13E-05	3.45E-04	1.74E-06	1.20E+12	
79.1348	1564.	0.00					
0.1360	3.9593	105.3845	129.5377	3.45E-04	0.07643	1.20E+12	
79.6134	3191.	0.00					
0.2720	3.9598	422.8133	259.8498	3.45E-04	0.3067	1.20E+12	
80.0821	3255.	0.00					
0.4080	3.9604	953.5343	390.9182	3.45E-04	0.6916	1.20E+12	
80.5407	3320.	0.00					
0.5440	3.9610	1699.	522.7267	3.45E-04	1.2321	1.20E+12	

80.9891	3387.	0.00				
0.6800	3.9615	2660.	655.2578	3.45E-04	1.9291	1.20E+12
81.4269	3455.	0.00				
0.8160	3.9621	3838.	788.4947	3.45E-04	2.7833	1.20E+12
81.8540	3525.	0.00				
0.9520	3.9627	5233.	922.4200	3.45E-04	3.7957	1.20E+12
82.2701	3596.	0.00				
1.0880	3.9632	6848.	1057.	3.45E-04	4.9670	1.20E+12
82.6750	3669.	0.00				
1.2240	3.9638	8683.	1192.	3.45E-04	6.2980	1.20E+12
83.0683	3744.	0.00				
1.3600	3.9644	10740.	1328.	3.45E-04	7.7895	1.20E+12
83.4500	3820.	0.00				
1.4960	3.9649	13019.	1465.	3.45E-04	9.4422	1.20E+12
83.8196	3899.	0.00				
1.6320	3.9655	15520.	1602.	3.45E-04	11.2568	1.20E+12
84.1769	3980.	0.00				
1.7680	3.9660	18247.	1739.	3.45E-04	13.2340	1.20E+12
84.5217	4062.	0.00				
1.9040	3.9666	21198.	1878.	3.45E-04	15.3744	1.20E+12
84.8534	4147.	0.00				
2.0400	3.9672	24375.	2016.	3.45E-04	17.6788	1.20E+12
85.1720	4234.	0.00				
2.1760	3.9677	27779.	2156.	3.45E-04	20.1478	1.20E+12
85.4770	4323.	0.00				
2.3120	3.9683	31411.	2295.	3.45E-04	22.7818	1.20E+12
85.7680	4415.	0.00				
2.4480	3.9689	35271.	2436.	3.45E-04	25.5815	1.20E+12
86.0447	4510.	0.00				
2.5840	3.9694	39360.	2576.	3.45E-04	28.5475	1.20E+12
86.3067	4607.	0.00				
2.7200	3.9700	43679.	2717.	3.46E-04	31.6802	1.20E+12
86.5537	4707.	0.00				
2.8560	3.9706	48229.	2859.	3.46E-04	34.9800	1.20E+12
86.7851	4810.	0.00				
2.9920	3.9711	53010.	3000.	3.46E-04	38.4475	1.20E+12
87.0005	4916.	0.00				
3.1280	3.9717	58023.	3143.	3.46E-04	42.0831	1.20E+12
87.1995	5025.	0.00				
3.2640	3.9722	63268.	3285.	3.46E-04	45.8871	1.20E+12
87.3817	5138.	0.00				
3.4000	3.9728	68745.	3428.	3.46E-04	49.8600	1.20E+12
87.5463	5255.	0.00				
3.5360	3.9734	74456.	3571.	3.46E-04	54.0019	1.20E+12
87.6930	5375.	0.00				
3.6720	3.9739	80400.	3714.	3.46E-04	58.3132	1.20E+12
87.8212	5499.	0.00				
3.8080	3.9745	86578.	3857.	3.46E-04	62.7942	1.20E+12
87.9302	5628.	0.00				
3.9440	3.9751	92991.	4001.	3.46E-04	67.4451	1.20E+12

88.0194	5762.	0.00				
4.0800	3.9756	99638.	4145.	3.46E-04	72.2660	1.20E+12
88.0882	5900.	0.00				
4.2160	3.9762	106519.	4289.	3.47E-04	77.2570	1.20E+12
88.1358	6044.	0.00				
4.3520	3.9768	113635.	4432.	3.47E-04	82.4183	1.20E+12
88.1615	6193.	0.00				
4.4880	3.9773	120986.	4576.	3.47E-04	87.7499	1.20E+12
88.1644	6347.	0.00				
4.6240	3.9779	128572.	4720.	3.47E-04	93.2518	1.20E+12
88.1438	6508.	0.00				
4.7600	3.9785	136393.	4864.	3.47E-04	98.9240	1.20E+12
88.0986	6676.	0.00				
4.8960	3.9790	144448.	5008.	3.47E-04	104.7664	1.20E+12
88.0280	6851.	0.00				
5.0320	3.9796	152738.	5151.	3.48E-04	110.7788	1.20E+12
87.9309	7034.	0.00				
5.1680	3.9802	161262.	5295.	3.48E-04	116.9611	1.20E+12
87.8061	7225.	0.00				
5.3040	3.9807	170020.	5438.	3.48E-04	123.3130	1.20E+12
87.6525	7425.	0.00				
5.4400	3.9813	179011.	5581.	3.48E-04	129.8342	1.20E+12
87.4688	7635.	0.00				
5.5760	3.9819	188235.	5723.	3.49E-04	136.5244	1.20E+12
87.2536	7855.	0.00				
5.7120	3.9824	197692.	5865.	3.49E-04	143.3831	1.20E+12
87.0054	8086.	0.00				
5.8480	3.9830	207380.	6007.	3.49E-04	150.4099	1.20E+12
86.7225	8330.	0.00				
5.9840	3.9836	217299.	6149.	3.49E-04	157.6043	1.20E+12
86.4032	8588.	0.00				
6.1200	3.9842	227449.	6289.	3.50E-04	164.9655	1.20E+12
86.0455	8860.	0.00				
6.2560	3.9847	237827.	6429.	3.50E-04	172.4930	1.20E+12
85.6474	9149.	0.00				
6.3920	3.9853	248434.	6569.	3.50E-04	180.1859	1.20E+12
85.2065	9455.	0.00				
6.5280	3.9859	259268.	6707.	3.51E-04	188.0434	1.20E+12
84.7202	9782.	0.00				
6.6640	3.9864	270327.	6845.	3.51E-04	196.0646	1.20E+12
84.1858	10131.	0.00				
6.8000	3.9870	281610.	6982.	3.51E-04	204.2484	1.20E+12
83.6000	10504.	0.00				
6.9360	3.9876	293117.	7118.	3.52E-04	212.5937	1.20E+12
82.9595	10906.	0.00				
7.0720	3.9882	304844.	7253.	3.52E-04	221.0992	1.20E+12
82.2602	11339.	0.00				
7.2080	3.9887	316790.	7387.	3.53E-04	229.7637	1.20E+12
81.4977	11807.	0.00				
7.3440	3.9893	328953.	7519.	3.53E-04	238.5856	1.20E+12

80.6670	12316.	0.00				
7.4800	3.9899	341332.	7650.	3.54E-04	247.5633	1.20E+12
79.7624	12873.	0.00				
7.6160	3.9905	353922.	7779.	3.54E-04	256.6951	1.20E+12
78.7771	13484.	0.00				
7.7520	3.9910	366723.	7907.	3.55E-04	265.9790	1.20E+12
77.7037	14159.	0.00				
7.8880	3.9916	379730.	8033.	3.55E-04	275.4131	1.20E+12
76.5329	14909.	0.00				
8.0240	3.9922	392941.	8157.	3.56E-04	284.9950	1.20E+12
75.2543	15750.	0.00				
8.1600	3.9928	406353.	8278.	3.56E-04	294.7223	1.20E+12
73.8549	16701.	0.00				
8.2960	3.9934	419961.	8397.	3.57E-04	304.5923	1.20E+12
72.3192	17788.	0.00				
8.4320	3.9939	433762.	8514.	3.57E-04	314.6019	1.20E+12
70.6280	19044.	0.00				
8.5680	3.9945	447751.	8628.	3.58E-04	324.7480	1.20E+12
68.7569	20517.	0.00				
8.7040	3.9951	461923.	8738.	3.58E-04	335.0269	1.20E+12
66.6746	22277.	0.00				
8.8400	3.9957	476273.	8845.	3.59E-04	345.4346	1.20E+12
64.3394	24425.	0.00				
8.9760	3.9963	490794.	8948.	3.60E-04	355.9666	1.20E+12
61.6938	27122.	0.00				
9.1120	3.9969	505480.	9046.	3.60E-04	366.6178	1.20E+12
58.6550	30636.	0.00				
9.2480	3.9975	520321.	9139.	3.61E-04	377.3823	1.20E+12
55.0959	35459.	0.00				
9.3840	3.9981	535310.	9226.	3.62E-04	388.2532	1.20E+12
50.8033	42611.	0.00				
9.5200	3.9986	550434.	9304.	3.63E-04	399.2223	1.20E+12
45.3687	54660.	0.00				
9.6560	3.9992	565678.	9372.	3.63E-04	410.2790	1.20E+12
37.7956	80929.	0.00				
9.7920	3.9998	581023.	9422.	3.64E-04	421.4087	1.20E+12
23.4764	227360.	0.00				
9.9280	4.0004	596431.	9416.	3.65E-04	432.5837	1.20E+12
-31.064	118883.	0.00				
10.0640	4.0010	611756.	9356.	3.66E-04	443.6988	1.20E+12
-42.094	67172.	0.00				
10.2000	4.0016	626969.	9281.	3.67E-04	454.7325	1.20E+12
-49.466	49822.	0.00				
10.3360	4.0022	642050.	9196.	3.67E-04	465.6707	1.20E+12
-55.328	40685.	0.00				
10.4720	4.0028	656984.	9101.	3.68E-04	476.5020	1.20E+12
-60.333	34919.	0.00				
10.6080	4.0034	671757.	8999.	3.69E-04	487.2168	1.20E+12
-64.780	30897.	0.00				
10.7440	4.0040	686358.	8890.	3.70E-04	497.8064	1.20E+12

-68.830	27907.	0.00				
10.8800	4.0046	700775.	8775.	3.71E-04	508.2630	1.20E+12
-72.583	25584.	0.00				
11.0160	4.0052	714999.	8654.	3.72E-04	518.5795	1.20E+12
-76.106	23719.	0.00				
11.1520	4.0058	729020.	8527.	3.73E-04	528.7489	1.20E+12
-79.444	22183.	0.00				
11.2880	4.0065	742830.	8394.	3.74E-04	538.7648	1.20E+12
-82.632	20894.	0.00				
11.4240	4.0071	756420.	8257.	3.75E-04	548.6212	1.20E+12
-85.694	19793.	0.00				
11.5600	4.0077	769781.	8115.	3.76E-04	558.3120	1.20E+12
-88.651	18842.	0.00				
11.6960	4.0083	782906.	7968.	3.77E-04	567.8315	1.20E+12
-91.517	18009.	0.00				
11.8320	4.0089	795788.	7816.	3.78E-04	577.1743	1.20E+12
-94.305	17274.	0.00				
11.9680	4.0095	808418.	7660.	3.79E-04	586.3348	1.20E+12
-97.026	16619.	0.00				
12.1040	4.0101	820790.	7499.	3.80E-04	595.3080	1.20E+12
-99.688	16032.	0.00				
12.2400	4.0108	832896.	7335.	3.82E-04	604.0886	1.20E+12
-102.297	15501.	0.00				
12.3760	4.0114	844730.	7166.	3.83E-04	612.6715	1.20E+12
-104.861	15020.	0.00				
12.5120	4.0120	856285.	6992.	3.84E-04	621.0519	1.20E+12
-107.384	14581.	0.00				
12.6480	4.0126	867553.	6815.	3.85E-04	629.2249	1.20E+12
-109.870	14178.	0.00				
12.7840	4.0133	878529.	6634.	3.86E-04	637.1856	1.20E+12
-112.324	13808.	0.00				
12.9200	4.0139	889206.	6449.	3.87E-04	644.9294	1.20E+12
-114.749	13465.	0.00				
13.0560	4.0145	899577.	6259.	3.89E-04	652.4514	1.20E+12
-117.147	13148.	0.00				
13.1920	4.0152	909636.	6066.	3.90E-04	659.7472	1.20E+12
-119.522	12853.	0.00				
13.3280	4.0158	919377.	5869.	3.91E-04	666.8121	1.20E+12
-121.876	12578.	0.00				
13.4640	4.0165	928793.	5668.	3.92E-04	673.6415	1.20E+12
-124.211	12321.	0.00				
13.6000	4.0171	937879.	5464.	3.94E-04	680.2311	1.20E+12
-126.528	12080.	0.00				
13.7360	4.0177	946627.	5255.	3.95E-04	686.5761	1.20E+12
-128.830	11853.	0.00				
13.8720	4.0184	955032.	5043.	3.96E-04	692.6724	1.20E+12
-131.118	11640.	0.00				
14.0080	4.0190	963088.	4827.	3.98E-04	698.5153	1.20E+12
-133.393	11439.	0.00				
14.1440	4.0197	970789.	4608.	3.99E-04	704.1006	1.20E+12

-135.657	11249.	0.00				
14.2800	4.0203	978129.	4385.	4.00E-04	709.4238	1.20E+12
-137.910	11069.	0.00				
14.4160	4.0210	985101.	4158.	4.02E-04	714.4806	1.20E+12
-140.154	10899.	0.00				
14.5520	4.0216	991700.	3927.	4.03E-04	719.2666	1.20E+12
-142.390	10737.	0.00				
14.6880	4.0223	997919.	3693.	4.04E-04	723.7776	1.20E+12
-144.619	10583.	0.00				
14.8240	4.0230	1003754.	3455.	4.06E-04	728.0092	1.20E+12
-146.841	10436.	0.00				
14.9600	4.0236	1009197.	3214.	4.07E-04	731.9572	1.20E+12
-149.057	10296.	0.00				
15.0960	4.0243	1014243.	2969.	4.08E-04	735.6172	1.20E+12
-151.268	10163.	0.00				
15.2320	4.0250	1018887.	2720.	4.10E-04	738.9850	1.20E+12
-153.474	10035.	0.00				
15.3680	4.0256	1023121.	2468.	4.11E-04	742.0564	1.20E+12
-155.677	9913.	0.00				
15.5040	4.0263	1026941.	2212.	4.13E-04	744.8270	1.20E+12
-157.876	9796.	0.00				
15.6400	4.0270	1030341.	1952.	4.14E-04	747.2926	1.20E+12
-160.072	9684.	0.00				
15.7760	4.0277	1033314.	1689.	4.15E-04	749.4490	1.20E+12
-162.266	9577.	0.00				
15.9120	4.0283	1035855.	1423.	4.17E-04	751.2920	1.20E+12
-164.458	9474.	0.00				
16.0480	4.0290	1037958.	1153.	4.18E-04	752.8172	1.20E+12
-166.649	9374.	0.00				
16.1840	4.0297	1039617.	878.8503	4.20E-04	754.0206	1.20E+12
-168.838	9279.	0.00				
16.3200	4.0304	1040827.	601.5196	4.21E-04	754.8978	1.20E+12
-171.027	9187.	0.00				
16.4560	4.0311	1041580.	320.6170	4.22E-04	755.4446	1.20E+12
-173.216	9099.	0.00				
16.5920	4.0318	1041873.	36.1438	4.24E-04	755.6568	1.20E+12
-175.404	9013.	0.00				
16.7280	4.0325	1041698.	-251.900	4.25E-04	755.5301	1.20E+12
-177.592	8931.	0.00				
16.8640	4.0331	1041051.	-543.517	4.27E-04	755.0605	1.20E+12
-179.781	8851.	0.00				
17.0000	4.0338	1039924.	-838.707	4.28E-04	754.2435	1.20E+12
-181.971	8774.	0.00				
17.1360	4.0345	1038313.	-1137.	4.29E-04	753.0750	1.20E+12
-184.161	8700.	0.00				
17.2720	4.0352	1036212.	-1440.	4.31E-04	751.5507	1.20E+12
-186.353	8628.	0.00				
17.4080	4.0360	1033614.	-1746.	4.32E-04	749.6664	1.20E+12
-188.546	8559.	0.00				
17.5440	4.0367	1030514.	-2055.	4.34E-04	747.4180	1.20E+12

-190.741	8492.	0.00				
17.6800	4.0374	1026905.	-2368.	4.35E-04	744.8010	1.20E+12
-192.938	8427.	0.00				
17.8160	4.0381	1022783.	-2685.	4.36E-04	741.8114	1.20E+12
-195.137	8363.	0.00				
17.9520	4.0388	1018142.	-3005.	4.38E-04	738.4448	1.20E+12
-197.338	8302.	0.00				
18.0880	4.0395	1012974.	-3329.	4.39E-04	734.6970	1.20E+12
-199.541	8243.	0.00				
18.2240	4.0402	1007276.	-3657.	4.41E-04	730.5637	1.20E+12
-201.747	8185.	0.00				
18.3600	4.0409	1001039.	-3988.	4.42E-04	726.0407	1.20E+12
-203.956	8129.	0.00				
18.4960	4.0417	994260.	-4322.	4.43E-04	721.1237	1.20E+12
-206.167	8075.	0.00				
18.6320	4.0424	986932.	-4661.	4.45E-04	715.8085	1.20E+12
-208.381	8022.	0.00				
18.7680	4.0431	979048.	-5002.	4.46E-04	710.0907	1.20E+12
-210.598	7971.	0.00				
18.9040	4.0438	970604.	-5348.	4.47E-04	703.9661	1.20E+12
-212.819	7921.	0.00				
19.0400	4.0446	961592.	-5697.	4.49E-04	697.4303	1.20E+12
-215.042	7872.	0.00				
19.1760	4.0453	952008.	-6050.	4.50E-04	690.4792	1.20E+12
-217.269	7825.	0.00				
19.3120	4.0460	941846.	-6406.	4.51E-04	683.1084	1.20E+12
-219.499	7779.	0.00				
19.4480	4.0468	931099.	-6766.	4.53E-04	675.3135	1.20E+12
-221.733	7735.	0.00				
19.5840	4.0475	919761.	-7130.	4.54E-04	667.0903	1.20E+12
-223.970	7691.	0.00				
19.7200	4.0483	907826.	-7497.	4.55E-04	658.4345	1.20E+12
-226.211	7649.	0.00				
19.8560	4.0490	895289.	-7868.	4.56E-04	649.3416	1.20E+12
-228.456	7607.	0.00				
19.9920	4.0498	882144.	-8243.	4.57E-04	639.8075	1.20E+12
-230.704	7567.	0.00				
20.1280	4.0505	868384.	-8621.	4.59E-04	629.8277	1.20E+12
-232.956	7528.	0.00				
20.2640	4.0513	854004.	-9003.	4.60E-04	619.3979	1.20E+12
-235.212	7490.	0.00				
20.4000	4.0520	838997.	-9389.	4.61E-04	608.5137	1.20E+12
-237.472	7452.	0.00				
20.5360	4.0528	823358.	-9778.	4.62E-04	597.1708	1.20E+12
-239.735	7416.	0.00				
20.6720	4.0535	807080.	-10172.	4.63E-04	585.3648	1.20E+12
-242.003	7380.	0.00				
20.8080	4.0543	790158.	-10568.	4.64E-04	573.0912	1.20E+12
-244.275	7346.	0.00				
20.9440	4.0550	772585.	-10969.	4.65E-04	560.3458	1.20E+12

-246.550	7312.	0.00				
21.0800	4.0558	754356.	-11373.	4.66E-04	547.1242	1.20E+12
-248.830	7279.	0.00				
21.2160	4.0566	735463.	-11781.	4.67E-04	533.4218	1.20E+12
-251.114	7247.	0.00				
21.3520	4.0573	715902.	-12193.	4.68E-04	519.2344	1.20E+12
-253.402	7215.	0.00				
21.4880	4.0581	695666.	-12608.	4.69E-04	504.5575	1.20E+12
-255.694	7185.	0.00				
21.6240	4.0588	674749.	-13027.	4.70E-04	489.3866	1.20E+12
-257.990	7155.	0.00				
21.7600	4.0596	653145.	-13450.	4.71E-04	473.7173	1.20E+12
-260.290	7126.	0.00				
21.8960	4.0604	630847.	-13877.	4.72E-04	457.5453	1.20E+12
-262.594	7097.	0.00				
22.0320	4.0612	607850.	-14307.	4.73E-04	440.8660	1.20E+12
-264.903	7069.	0.00				
22.1680	4.0619	584148.	-14742.	4.74E-04	423.6749	1.20E+12
-267.215	7042.	0.00				
22.3040	4.0627	559734.	-15180.	4.75E-04	405.9677	1.20E+12
-269.532	7015.	0.00				
22.4400	4.0635	534602.	-15621.	4.75E-04	387.7398	1.20E+12
-271.852	6989.	0.00				
22.5760	4.0643	508746.	-16067.	4.76E-04	368.9867	1.20E+12
-274.177	6964.	0.00				
22.7120	4.0650	482160.	-16516.	4.77E-04	349.7040	1.20E+12
-276.505	6939.	0.00				
22.8480	4.0658	454837.	-16969.	4.77E-04	329.8872	1.20E+12
-278.838	6915.	0.00				
22.9840	4.0666	426771.	-17426.	4.78E-04	309.5317	1.20E+12
-281.174	6891.	0.00				
23.1200	4.0674	397957.	-17887.	4.78E-04	288.6330	1.20E+12
-283.515	6868.	0.00				
23.2560	4.0681	368388.	-18352.	4.79E-04	267.1867	1.20E+12
-285.859	6846.	0.00				
23.3920	4.0689	338057.	-18820.	4.79E-04	245.1882	1.20E+12
-288.207	6823.	0.00				
23.5280	4.0697	306958.	-19292.	4.80E-04	222.6329	1.20E+12
-290.560	6802.	0.00				
23.6640	4.0705	275086.	-19769.	4.80E-04	199.5164	1.20E+12
-292.915	6781.	0.00				
23.8000	4.0713	242434.	-20249.	4.81E-04	175.8340	1.20E+12
-295.275	6760.	0.00				
23.9360	4.0721	208995.	-20732.	4.81E-04	151.5812	1.20E+12
-297.638	6740.	0.00				
24.0720	4.0729	174763.	-21220.	4.81E-04	126.7534	1.20E+12
-300.005	6721.	0.00				
24.2080	4.0736	139733.	-21712.	4.81E-04	101.3462	1.20E+12
-302.376	6701.	0.00				
24.3440	4.0744	103896.	-22207.	4.82E-04	75.3548	1.20E+12

-304.750	6683.	0.00				
24.4800	4.0752	67249.	-22706.	4.82E-04	48.7747	1.20E+12
-307.128	6664.	0.00				
24.6160	4.0760	29783.	-23209.	4.82E-04	21.6013	1.20E+12
-309.509	6647.	0.00				
24.7520	4.0768	-8507.	-23717.	4.82E-04	6.1700	1.20E+12
-311.893	6629.	0.00				
24.8880	4.0776	-47628.	-24228.	4.82E-04	34.5438	1.20E+12
-314.281	6612.	0.00				
25.0240	4.0784	-87586.	-24742.	4.82E-04	63.5247	1.20E+12
-316.671	6596.	0.00				
25.1600	4.0791	-128387.	-25261.	4.81E-04	93.1173	1.20E+12
-319.065	6580.	0.00				
25.2960	4.0799	-170038.	-25784.	4.81E-04	123.3263	1.20E+12
-321.463	6564.	0.00				
25.4320	4.0807	-212545.	-26310.	4.81E-04	154.1562	1.20E+12
-323.863	6549.	0.00				
25.5680	4.0815	-255915.	-26841.	4.81E-04	185.6118	1.20E+12
-326.266	6534.	0.00				
25.7040	4.0823	-300154.	-27375.	4.80E-04	217.6977	1.20E+12
-328.671	6519.	0.00				
25.8400	4.0831	-345268.	-27914.	4.80E-04	250.4184	1.20E+12
-331.080	6505.	0.00				
25.9760	4.0838	-391264.	-28456.	4.79E-04	283.7787	1.20E+12
-333.491	6491.	0.00				
26.1120	4.0846	-438148.	-29002.	4.79E-04	317.7833	1.20E+12
-335.905	6478.	0.00				
26.2480	4.0854	-485927.	-29552.	4.78E-04	352.4367	1.20E+12
-338.321	6465.	0.00				
26.3840	4.0862	-534607.	-30106.	4.78E-04	387.7437	1.20E+12
-340.740	6452.	0.00				
26.5200	4.0870	-584195.	-30665.	4.77E-04	423.7088	1.20E+12
-343.161	6440.	0.00				
26.6560	4.0877	-634696.	-31227.	4.76E-04	460.3369	1.20E+12
-345.583	6428.	0.00				
26.7920	4.0885	-686118.	-31793.	4.75E-04	497.6326	1.20E+12
-348.009	6416.	0.00				
26.9280	4.0893	-738467.	-32362.	4.74E-04	535.6005	1.20E+12
-350.436	6405.	0.00				
27.0640	4.0901	-791749.	-32936.	4.73E-04	574.2454	1.20E+12
-352.864	6394.	0.00				
27.2000	4.0908	-845971.	-33514.	4.72E-04	613.5720	1.20E+12
-355.295	6383.	0.00				
27.3360	4.0916	-901140.	-34096.	4.71E-04	653.5848	1.20E+12
-357.727	6373.	0.00				
27.4720	4.0924	-957261.	-34682.	4.69E-04	694.2887	1.20E+12
-360.161	6363.	0.00				
27.6080	4.0931	-1014341.	-35272.	4.68E-04	735.6884	1.20E+12
-362.596	6353.	0.00				
27.7440	4.0939	-1072387.	-35865.	4.67E-04	777.7885	1.20E+12

-365.032	6344.	0.00				
27.8800	4.0947	-1131406.	-36463.	4.65E-04	820.5937	1.20E+12
-367.469	6335.	0.00				
28.0160	4.0954	-1191403.	-37065.	4.64E-04	864.1088	1.20E+12
-369.907	6326.	0.00				
28.1520	4.0962	-1252385.	-37670.	4.62E-04	908.3385	1.20E+12
-372.346	6318.	0.00				
28.2880	4.0969	-1314359.	-38280.	4.60E-04	953.2874	1.20E+12
-374.786	6310.	0.00				
28.4240	4.0977	-1377331.	-38894.	4.58E-04	998.9603	1.20E+12
-377.226	6303.	0.00				
28.5600	4.0984	-1441308.	-39511.	4.56E-04	1045.	1.20E+12
-379.667	6295.	0.00				
28.6960	4.0992	-1506296.	-40133.	4.54E-04	1092.	1.20E+12
-382.108	6288.	0.00				
28.8320	4.0999	-1572302.	-40759.	4.52E-04	1140.	1.20E+12
-384.548	6282.	0.00				
28.9680	4.1006	-1639332.	-41388.	4.50E-04	1189.	1.20E+12
-386.989	6275.	0.00				
29.1040	4.1014	-1707393.	-42022.	4.48E-04	1238.	1.20E+12
-389.430	6269.	0.00				
29.2400	4.1021	-1776491.	-42659.	4.46E-04	1288.	1.20E+12
-391.870	6263.	0.00				
29.3760	4.1028	-1846633.	-43301.	4.43E-04	1339.	1.20E+12
-394.310	6258.	0.00				
29.5120	4.1036	-1917825.	-43946.	4.40E-04	1391.	1.20E+12
-396.748	6253.	0.00				
29.6480	4.1043	-1990074.	-44596.	4.38E-04	1443.	1.20E+12
-399.186	6248.	0.00				
29.7840	4.1050	-2063386.	-45249.	4.35E-04	1497.	1.20E+12
-401.623	6243.	0.00				
29.9200	4.1057	-2137767.	-45907.	4.32E-04	1550.	1.20E+12
-404.059	6239.	0.00				
30.0560	4.1064	-2213225.	-46568.	4.29E-04	1605.	1.20E+12
-406.493	6235.	0.00				
30.1920	4.1071	-2289765.	-47233.	4.26E-04	1661.	1.20E+12
-408.925	6232.	0.00				
30.3280	4.1078	-2367395.	-47903.	4.23E-04	1717.	1.20E+12
-411.356	6228.	0.00				
30.4640	4.1085	-2446120.	-48576.	4.20E-04	1774.	1.20E+12
-413.784	6225.	0.00				
30.6000	4.1092	-2525947.	-49253.	4.16E-04	1832.	1.20E+12
-416.210	6223.	0.00				
30.7360	4.1098	-2606883.	-49935.	4.13E-04	1891.	1.20E+12
-418.634	6221.	0.00				
30.8720	4.1105	-2688934.	-50620.	4.09E-04	1950.	1.20E+12
-421.055	6219.	0.00				
31.0080	4.1112	-2772106.	-51309.	4.06E-04	2011.	1.20E+12
-423.473	6217.	0.00				
31.1440	4.1118	-2856406.	-52002.	4.02E-04	2072.	1.20E+12

-425.888	6215.	0.00				
31.2800	4.1125	-2941841.	-52699.	3.98E-04	2134.	1.20E+12
-428.300	6214.	0.00				
31.4160	4.1131	-3028416.	-53400.	3.94E-04	2196.	1.20E+12
-430.708	6214.	0.00				
31.5520	4.1138	-3116138.	-54105.	3.90E-04	2260.	1.20E+12
-433.112	6213.	0.00				
31.6880	4.1144	-3205014.	-54814.	3.85E-04	2325.	1.20E+12
-435.512	6213.	0.00				
31.8240	4.1150	-3295050.	-55526.	3.81E-04	2390.	1.20E+12
-437.908	6213.	0.00				
31.9600	4.1156	-3386252.	-56243.	3.76E-04	2456.	1.20E+12
-440.299	6214.	0.00				
32.0960	4.1162	-3478627.	-56963.	3.72E-04	2523.	1.20E+12
-442.686	6215.	0.00				
32.2320	4.1169	-3572181.	-57688.	3.67E-04	2591.	1.20E+12
-445.067	6216.	0.00				
32.3680	4.1174	-3666920.	-58416.	3.62E-04	2660.	1.20E+12
-447.443	6218.	0.00				
32.5040	4.1180	-3762851.	-59148.	3.57E-04	2729.	1.20E+12
-449.814	6219.	0.00				
32.6400	4.1186	-3859980.	-59884.	3.52E-04	2800.	1.20E+12
-452.178	6222.	0.00				
32.7760	4.1192	-3958314.	-60624.	3.46E-04	2871.	1.20E+12
-454.537	6224.	0.00				
32.9120	4.1197	-4057858.	-61368.	3.41E-04	2943.	1.20E+12
-456.888	6227.	0.00				
33.0480	4.1203	-4158619.	-62116.	3.35E-04	3016.	1.20E+12
-459.234	6230.	0.00				
33.1840	4.1208	-4260603.	-62867.	3.30E-04	3090.	1.20E+12
-461.572	6234.	0.00				
33.3200	4.1214	-4363817.	-63622.	3.24E-04	3165.	1.20E+12
-463.902	6238.	0.00				
33.4560	4.1219	-4468266.	-64381.	3.18E-04	3241.	1.20E+12
-466.226	6242.	0.00				
33.5920	4.1224	-4573956.	-65144.	3.12E-04	3317.	1.20E+12
-468.541	6247.	0.00				
33.7280	4.1229	-4680895.	-65910.	3.05E-04	3395.	1.20E+12
-470.847	6252.	0.00				
33.8640	4.1234	-4789088.	-66681.	2.99E-04	3473.	1.20E+12
-473.145	6257.	0.00				
34.0000	4.1239	-4898541.	-67455.	2.92E-04	3553.	1.20E+12
-475.434	6263.	0.00				
34.1360	4.1244	-5009260.	-68233.	2.85E-04	3633.	1.20E+12
-477.714	6269.	0.00				
34.2720	4.1248	-5121252.	-69014.	2.79E-04	3714.	1.20E+12
-479.984	6276.	0.00				
34.4080	4.1253	-5234522.	-69799.	2.72E-04	3797.	1.20E+12
-482.244	6283.	0.00				
34.5440	4.1257	-5349076.	-70588.	2.64E-04	3880.	1.20E+12

-484.494	6290.	0.00				
34.6800	4.1261	-5464921.	-71381.	2.57E-04	3964.	1.20E+12
-486.732	6298.	0.00				
34.8160	4.1265	-5582062.	-72177.	2.49E-04	4049.	1.20E+12
-488.960	6306.	0.00				
34.9520	4.1269	-5700506.	-72976.	2.42E-04	4135.	1.20E+12
-491.176	6315.	0.00				
35.0880	4.1273	-5820258.	-73780.	2.34E-04	4221.	1.20E+12
-493.380	6324.	0.00				
35.2240	4.1277	-5941324.	-74587.	2.26E-04	4309.	1.20E+12
-495.571	6333.	0.00				
35.3600	4.1281	-6063709.	-75397.	2.18E-04	4398.	1.20E+12
-497.750	6343.	0.00				
35.4960	4.1284	-6187421.	-76212.	2.09E-04	4488.	1.20E+12
-499.915	6353.	0.00				
35.6320	4.1288	-6312464.	-77029.	2.01E-04	4578.	1.20E+12
-502.067	6364.	0.00				
35.7680	4.1291	-6438844.	-77850.	1.92E-04	4670.	1.20E+12
-504.204	6375.	0.00				
35.9040	4.1294	-6566567.	-78675.	1.83E-04	4763.	1.20E+12
-506.327	6387.	0.00				
36.0400	4.1297	-6695639.	-79503.	1.74E-04	4856.	1.20E+12
-508.435	6399.	0.00				
36.1760	4.1299	-6826064.	-80334.	1.65E-04	4951.	1.20E+12
-510.527	6412.	0.00				
36.3120	4.1302	-6957850.	-81169.	1.56E-04	5046.	1.20E+12
-512.603	6425.	0.00				
36.4480	4.1305	-7091001.	-82007.	1.46E-04	5143.	1.20E+12
-513.653	6426.	0.00				
36.5840	4.1307	-7225520.	-82846.	1.37E-04	5241.	1.20E+12
-514.573	6426.	0.00				
36.7200	4.1309	-7361409.	-83686.	1.27E-04	5339.	1.20E+12
-515.473	6426.	0.00				
36.8560	4.1311	-7498671.	-84528.	1.17E-04	5439.	1.20E+12
-516.351	6428.	0.00				
36.9920	4.1313	-7637309.	-85372.	1.06E-04	5539.	1.20E+12
-517.208	6429.	0.00				
37.1280	4.1314	-7777324.	-86216.	9.57E-05	5641.	1.20E+12
-518.043	6432.	0.00				
37.2640	4.1316	-7918719.	-87062.	8.51E-05	5743.	1.20E+12
-518.855	6435.	0.00				
37.4000	4.1317	-8061496.	-87910.	7.42E-05	5847.	1.20E+12
-519.645	6438.	0.00				
37.5360	4.1318	-8205657.	-88759.	6.31E-05	5951.	1.20E+12
-520.411	6442.	0.00				
37.6720	4.1319	-8351204.	-89608.	5.19E-05	6057.	1.20E+12
-521.154	6447.	0.00				
37.8080	4.1320	-8498139.	-90460.	4.04E-05	6164.	1.20E+12
-521.873	6452.	0.00				
37.9440	4.1321	-8646464.	-91312.	2.87E-05	6271.	1.20E+12

-522.566	6458.	0.00				
38.0800	4.1321	-8796181.	-92165.	1.69E-05	6380.	1.20E+12
-523.235	6464.	0.00				
38.2160	4.1321	-8947291.	-93020.	4.80E-06	6489.	1.20E+12
-523.878	6471.	0.00				
38.3520	4.1321	-9099797.	-93875.	-7.48E-06	6600.	1.20E+12
-524.495	6479.	0.00				
38.4880	4.1321	-9253700.	-94732.	-2.00E-05	6712.	1.20E+12
-525.085	6487.	0.00				
38.6240	4.1321	-9409001.	-95589.	-3.27E-05	6824.	1.20E+12
-525.647	6496.	0.00				
38.7600	4.1320	-9565702.	-96447.	-4.56E-05	6938.	1.20E+12
-526.182	6506.	0.00				
38.8960	4.1319	-9723805.	-97306.	-5.87E-05	7053.	1.20E+12
-526.688	6517.	0.00				
39.0320	4.1318	-9883310.	-98166.	-7.20E-05	7168.	1.20E+12
-527.165	6528.	0.00				
39.1680	4.1317	-1.00E+07	-99027.	-8.56E-05	7285.	1.20E+12
-527.613	6540.	0.00				
39.3040	4.1315	-1.02E+07	-99888.	-9.94E-05	7403.	1.20E+12
-528.030	6552.	0.00				
39.4400	4.1313	-1.04E+07	-100751.	-1.13E-04	7521.	1.20E+12
-528.416	6566.	0.00				
39.5760	4.1311	-1.05E+07	-101613.	-1.28E-04	7641.	1.20E+12
-528.770	6580.	0.00				
39.7120	4.1309	-1.07E+07	-102476.	-1.42E-04	7762.	1.20E+12
-529.092	6595.	0.00				
39.8480	4.1307	-1.09E+07	-103340.	-1.57E-04	7884.	1.20E+12
-529.381	6611.	0.00				
39.9840	4.1304	-1.10E+07	-104204.	-1.72E-04	8007.	1.20E+12
-529.636	6628.	0.00				
40.1200	4.1301	-1.12E+07	-105069.	-1.87E-04	8130.	1.20E+12
-529.856	6645.	0.00				
40.2560	4.1298	-1.14E+07	-105934.	-2.02E-04	8255.	1.20E+12
-530.041	6664.	0.00				
40.3920	4.1295	-1.16E+07	-106799.	-2.18E-04	8381.	1.20E+12
-530.190	6683.	0.00				
40.5280	4.1291	-1.17E+07	-107664.	-2.34E-04	8508.	1.20E+12
-530.302	6704.	0.00				
40.6640	4.1287	-1.19E+07	-108530.	-2.50E-04	8636.	1.20E+12
-530.376	6725.	0.00				
40.8000	4.1283	-1.21E+07	-109395.	-2.66E-04	8765.	1.20E+12
-530.411	6748.	0.00				
40.9360	4.1278	-1.23E+07	-110261.	-2.83E-04	8895.	1.20E+12
-530.406	6771.	0.00				
41.0720	4.1274	-1.24E+07	-111127.	-2.99E-04	9026.	1.20E+12
-530.361	6796.	0.00				
41.2080	4.1269	-1.26E+07	-111992.	-3.16E-04	9158.	1.20E+12
-530.274	6822.	0.00				
41.3440	4.1263	-1.28E+07	-112857.	-3.34E-04	9291.	1.20E+12

-530.144	6849.	0.00				
41.4800	4.1258	-1.30E+07	-113722.	-3.51E-04	9425.	1.20E+12
-529.970	6877.	0.00				
41.6160	4.1252	-1.32E+07	-114587.	-3.69E-04	9560.	1.20E+12
-529.752	6906.	0.00				
41.7520	4.1246	-1.34E+07	-115451.	-3.87E-04	9697.	1.20E+12
-529.488	6937.	0.00				
41.8880	4.1239	-1.36E+07	-116315.	-4.05E-04	9834.	1.20E+12
-529.177	6969.	0.00				
42.0240	4.1232	-1.37E+07	-117179.	-4.24E-04	9972.	1.20E+12
-528.817	7003.	0.00				
42.1600	4.1225	-1.39E+07	-118041.	-4.43E-04	10111.	1.20E+12
-528.408	7038.	0.00				
42.2960	4.1218	-1.41E+07	-118903.	-4.62E-04	10251.	1.20E+12
-527.947	7074.	0.00				
42.4320	4.1210	-1.43E+07	-119764.	-4.81E-04	10393.	1.20E+12
-527.435	7112.	0.00				
42.5680	4.1202	-1.45E+07	-120625.	-5.01E-04	10535.	1.20E+12
-526.868	7152.	0.00				
42.7040	4.1194	-1.47E+07	-121484.	-5.21E-04	10678.	1.20E+12
-526.247	7194.	0.00				
42.8400	4.1185	-1.49E+07	-122342.	-5.41E-04	10823.	1.20E+12
-525.568	7237.	0.00				
42.9760	4.1176	-1.51E+07	-123200.	-5.61E-04	10968.	1.20E+12
-524.831	7282.	0.00				
43.1120	4.1167	-1.53E+07	-124055.	-5.82E-04	11114.	1.20E+12
-524.034	7329.	0.00				
43.2480	4.1157	-1.55E+07	-124910.	-6.03E-04	11262.	1.20E+12
-523.176	7378.	0.00				
43.3840	4.1147	-1.57E+07	-125763.	-6.24E-04	11410.	1.20E+12
-522.253	7429.	0.00				
43.5200	4.1137	-1.59E+07	-126615.	-6.46E-04	11559.	1.20E+12
-521.265	7483.	0.00				
43.6560	4.1126	-1.61E+07	-127464.	-6.68E-04	11710.	1.20E+12
-520.209	7539.	0.00				
43.7920	4.1115	-1.64E+07	-128312.	-6.90E-04	11861.	1.20E+12
-519.083	7597.	0.00				
43.9280	4.1104	-1.66E+07	-129159.	-7.12E-04	12013.	1.20E+12
-517.885	7658.	0.00				
44.0640	4.1092	-1.68E+07	-130003.	-7.35E-04	12167.	1.20E+12
-516.613	7722.	0.00				
44.2000	4.1080	-1.70E+07	-130845.	-7.58E-04	12321.	1.20E+12
-515.264	7789.	0.00				
44.3360	4.1067	-1.72E+07	-131685.	-7.81E-04	12477.	1.20E+12
-513.835	7859.	0.00				
44.4720	4.1054	-1.74E+07	-132522.	-8.05E-04	12633.	1.20E+12
-512.325	7932.	0.00				
44.6080	4.1041	-1.76E+07	-133357.	-8.29E-04	12790.	1.20E+12
-510.729	8008.	0.00				
44.7440	4.1027	-1.79E+07	-134189.	-8.53E-04	12949.	1.20E+12

-509.045	8088.	0.00				
44.8800	4.1013	-1.81E+07	-135018.	-8.77E-04	13108.	1.20E+12
-507.269	8172.	0.00				
45.0160	4.0998	-1.83E+07	-135844.	-9.02E-04	13268.	1.20E+12
-505.399	8261.	0.00				
45.1520	4.0984	-1.85E+07	-136668.	-9.27E-04	13429.	1.20E+12
-503.430	8353.	0.00				
45.2880	4.0968	-1.87E+07	-137488.	-9.52E-04	13592.	1.20E+12
-501.359	8451.	0.00				
45.4240	4.0952	-1.90E+07	-138304.	-9.78E-04	13755.	1.20E+12
-499.182	8553.	0.00				
45.5600	4.0936	-1.92E+07	-139117.	-0.00100	13919.	1.20E+12
-496.893	8661.	0.00				
45.6960	4.0920	-1.94E+07	-139926.	-0.00103	14084.	1.20E+12
-494.489	8775.	0.00				
45.8320	4.0903	-1.96E+07	-140731.	-0.00106	14250.	1.20E+12
-491.964	8894.	0.00				
45.9680	4.0885	-1.99E+07	-141531.	-0.00108	14417.	1.20E+12
-489.313	9021.	0.00				
46.1040	4.0867	-2.01E+07	-142328.	-0.00111	14585.	1.20E+12
-486.530	9155.	0.00				
46.2400	4.0849	-2.03E+07	-143119.	-0.00114	14754.	1.20E+12
-483.609	9297.	0.00				
46.3760	4.0830	-2.06E+07	-143906.	-0.00117	14924.	1.20E+12
-480.542	9447.	0.00				
46.5120	4.0811	-2.08E+07	-144688.	-0.00119	15095.	1.20E+12
-477.324	9606.	0.00				
46.6480	4.0791	-2.10E+07	-145464.	-0.00122	15267.	1.20E+12
-473.944	9776.	0.00				
46.7840	4.0771	-2.13E+07	-146235.	-0.00125	15439.	1.20E+12
-470.396	9957.	0.00				
46.9200	4.0750	-2.15E+07	-146999.	-0.00128	15613.	1.20E+12
-466.669	10150.	0.00				
47.0560	4.0729	-2.18E+07	-147758.	-0.00131	15787.	1.20E+12
-462.753	10357.	0.00				
47.1920	4.0708	-2.20E+07	-148509.	-0.00134	15963.	1.20E+12
-458.636	10578.	0.00				
47.3280	4.0685	-2.23E+07	-149254.	-0.00137	16139.	1.20E+12
-454.306	10816.	0.00				
47.4640	4.0663	-2.25E+07	-149992.	-0.00140	16316.	1.20E+12
-449.748	11073.	0.00				
47.6000	4.0640	-2.27E+07	-150722.	-0.00143	16494.	1.20E+12
-444.947	11351.	0.00				
47.7360	4.0616	-2.30E+07	-151444.	-0.00146	16673.	1.20E+12
-439.885	11651.	0.00				
47.8720	4.0592	-2.32E+07	-152158.	-0.00149	16853.	1.20E+12
-434.542	11979.	0.00				
48.0080	4.0567	-2.35E+07	-153193.	-0.00153	17033.	1.20E+12
-833.912	23986.	0.00				
48.1440	4.0542	-2.37E+07	-154542.	-0.00156	17215.	1.20E+12

-819.463	24664.	0.00				
48.2800	4.0517	-2.40E+07	-155866.	-0.00159	17399.	1.20E+12
-803.671	25392.	0.00				
48.4160	4.0490	-2.42E+07	-157164.	-0.00162	17584.	1.20E+12
-786.440	26176.	0.00				
48.5520	4.0464	-2.45E+07	-158432.	-0.00166	17771.	1.20E+12
-767.660	27025.	0.00				
48.6880	4.0436	-2.48E+07	-159668.	-0.00169	17959.	1.20E+12
-747.207	27951.	0.00				
48.8240	4.0408	-2.50E+07	-160870.	-0.00172	18149.	1.20E+12
-724.938	28967.	0.00				
48.9600	4.0380	-2.53E+07	-162033.	-0.00176	18340.	1.20E+12
-700.687	30091.	0.00				
49.0960	4.0351	-2.56E+07	-163155.	-0.00179	18533.	1.20E+12
-674.257	31345.	0.00				
49.2320	4.0322	-2.58E+07	-164232.	-0.00183	18726.	1.20E+12
-645.411	32760.	0.00				
49.3680	4.0291	-2.61E+07	-165259.	-0.00186	18921.	1.20E+12
-613.863	34378.	0.00				
49.5040	4.0261	-2.64E+07	-166233.	-0.00190	19118.	1.20E+12
-579.251	36258.	0.00				
49.6400	4.0229	-2.66E+07	-167147.	-0.00193	19315.	1.20E+12
-541.112	38486.	0.00				
49.7760	4.0198	-2.69E+07	-167996.	-0.00197	19513.	1.20E+12
-498.825	41199.	0.00				
49.9120	4.0165	-2.72E+07	-168771.	-0.00201	19713.	1.20E+12
-451.522	44623.	0.00				
50.0480	4.0132	-2.75E+07	-169450.	-0.00204	19913.	1.20E+12
-380.734	47047.	0.00				
50.1840	4.0098	-2.77E+07	-169993.	-0.00208	20114.	1.20E+12
-284.434	47175.	0.00				
50.3200	4.0064	-2.80E+07	-170377.	-0.00212	20315.	1.20E+12
-185.823	47302.	0.00				
50.4560	4.0029	-2.83E+07	-170598.	-0.00216	20517.	1.20E+12
-84.866	47430.	0.00				
50.5920	3.9994	-2.86E+07	-170652.	-0.00220	20719.	1.20E+12
18.4675	47558.	0.00				
50.7280	3.9957	-2.88E+07	-170535.	-0.00224	20921.	1.20E+12
124.2111	47686.	0.00				
50.8640	3.9921	-2.91E+07	-170244.	-0.00228	21123.	1.20E+12
232.3979	47814.	0.00				
51.0000	3.9883	-2.94E+07	-169775.	-0.00232	21324.	1.20E+12
343.0608	47942.	0.00				
51.1360	3.9845	-2.97E+07	-169123.	-0.00236	21525.	1.20E+12
456.2335	48069.	0.00				
51.2720	3.9806	-3.00E+07	-168305.	-0.00240	21725.	1.20E+12
545.6456	45981.	0.00				
51.4080	3.9767	-3.02E+07	-167357.	-0.00244	21923.	1.20E+12
616.2613	43146.	0.00				
51.5440	3.9727	-3.05E+07	-166295.	-0.00248	22121.	1.20E+12

684.8310	40908.	0.00				
51.6800	3.9686	-3.08E+07	-165123.	-0.00252	22317.	1.20E+12
751.9729	39084.	0.00				
51.8160	3.9645	-3.10E+07	-163842.	-0.00256	22512.	1.20E+12
818.1239	37562.	0.00				
51.9520	3.9602	-3.13E+07	-162453.	-0.00260	22705.	1.20E+12
883.6065	36267.	0.00				
52.0880	3.9560	-3.16E+07	-160958.	-0.00265	22896.	1.20E+12
948.6673	35149.	0.00				
52.2240	3.9516	-3.18E+07	-159357.	-0.00269	23086.	1.20E+12
1014.	34172.	0.00				
52.3600	3.9472	-3.21E+07	-157650.	-0.00273	23273.	1.20E+12
1078.	33310.	0.00				
52.4960	3.9427	-3.23E+07	-155837.	-0.00278	23459.	1.20E+12
1143.	32542.	0.00				
52.6320	3.9381	-3.26E+07	-153919.	-0.00282	23642.	1.20E+12
1208.	31853.	0.00				
52.7680	3.9335	-3.28E+07	-151894.	-0.00287	23823.	1.20E+12
1273.	31232.	0.00				
52.9040	3.9287	-3.31E+07	-149762.	-0.00291	24002.	1.20E+12
1339.	30667.	0.00				
53.0400	3.9240	-3.33E+07	-147523.	-0.00296	24178.	1.20E+12
1405.	30152.	0.00				
53.1760	3.9191	-3.36E+07	-145177.	-0.00300	24351.	1.20E+12
1471.	29680.	0.00				
53.3120	3.9142	-3.38E+07	-142721.	-0.00305	24522.	1.20E+12
1538.	29246.	0.00				
53.4480	3.9092	-3.40E+07	-140155.	-0.00309	24689.	1.20E+12
1606.	28845.	0.00				
53.5840	3.9041	-3.43E+07	-137479.	-0.00314	24853.	1.20E+12
1674.	28474.	0.00				
53.7200	3.8989	-3.45E+07	-134691.	-0.00319	25015.	1.20E+12
1743.	28130.	0.00				
53.8560	3.8937	-3.47E+07	-131791.	-0.00323	25172.	1.20E+12
1812.	27809.	0.00				
53.9920	3.8883	-3.49E+07	-128777.	-0.00328	25326.	1.20E+12
1882.	27510.	0.00				
54.1280	3.8830	-3.51E+07	-125647.	-0.00333	25477.	1.20E+12
1953.	27230.	0.00				
54.2640	3.8775	-3.53E+07	-122401.	-0.00338	25624.	1.20E+12
2025.	26968.	0.00				
54.4000	3.8719	-3.55E+07	-119038.	-0.00343	25767.	1.20E+12
2097.	26723.	0.00				
54.5360	3.8663	-3.57E+07	-115556.	-0.00347	25906.	1.20E+12
2170.	26491.	0.00				
54.6720	3.8606	-3.59E+07	-111954.	-0.00352	26040.	1.20E+12
2244.	26274.	0.00				
54.8080	3.8548	-3.61E+07	-108230.	-0.00357	26171.	1.20E+12
2319.	26069.	0.00				
54.9440	3.8489	-3.63E+07	-104383.	-0.00362	26297.	1.20E+12

2395.	25875.	0.00				
55.0800	3.8430	-3.64E+07	-100411.	-0.00367	26418.	1.20E+12
2472.	25692.	0.00				
55.2160	3.8370	-3.66E+07	-96314.	-0.00372	26534.	1.20E+12
2550.	25519.	0.00				
55.3520	3.8308	-3.67E+07	-92089.	-0.00377	26646.	1.20E+12
2628.	25355.	0.00				
55.4880	3.8246	-3.69E+07	-87735.	-0.00382	26752.	1.20E+12
2708.	25200.	0.00				
55.6240	3.8184	-3.70E+07	-83250.	-0.00387	26854.	1.20E+12
2788.	25053.	0.00				
55.7600	3.8120	-3.72E+07	-78634.	-0.00392	26949.	1.20E+12
2870.	24913.	0.00				
55.8960	3.8056	-3.73E+07	-73883.	-0.00397	27040.	1.20E+12
2952.	24780.	0.00				
56.0320	3.7991	-3.74E+07	-68997.	-0.00402	27124.	1.20E+12
3036.	24654.	0.00				
56.1680	3.7925	-3.75E+07	-63974.	-0.00407	27203.	1.20E+12
3120.	24534.	0.00				
56.3040	3.7858	-3.76E+07	-58812.	-0.00412	27276.	1.20E+12
3206.	24419.	0.00				
56.4400	3.7790	-3.77E+07	-53510.	-0.00418	27342.	1.20E+12
3292.	24311.	0.00				
56.5760	3.7721	-3.78E+07	-48066.	-0.00423	27402.	1.20E+12
3380.	24207.	0.00				
56.7120	3.7652	-3.79E+07	-42477.	-0.00428	27456.	1.20E+12
3469.	24109.	0.00				
56.8480	3.7582	-3.79E+07	-36743.	-0.00433	27503.	1.20E+12
3558.	24015.	0.00				
56.9840	3.7511	-3.80E+07	-30862.	-0.00438	27543.	1.20E+12
3649.	23925.	0.00				
57.1200	3.7439	-3.80E+07	-24831.	-0.00443	27576.	1.20E+12
3741.	23840.	0.00				
57.2560	3.7366	-3.81E+07	-18649.	-0.00448	27602.	1.20E+12
3835.	23758.	0.00				
57.3920	3.7292	-3.81E+07	-12314.	-0.00454	27620.	1.20E+12
3929.	23681.	0.00				
57.5280	3.7218	-3.81E+07	-5824.	-0.00459	27631.	1.20E+12
4024.	23607.	0.00				
57.6640	3.7143	-3.81E+07	822.9178	-0.00464	27634.	1.20E+12
4121.	23537.	0.00				
57.8000	3.7066	-3.81E+07	7628.	-0.00469	27629.	1.20E+12
4219.	23469.	0.00				
57.9360	3.6989	-3.81E+07	14594.	-0.00474	27616.	1.20E+12
4318.	23405.	0.00				
58.0720	3.6912	-3.80E+07	21722.	-0.00480	27595.	1.20E+12
4418.	23344.	0.00				
58.2080	3.6833	-3.80E+07	29014.	-0.00485	27565.	1.20E+12
4519.	23286.	0.00				
58.3440	3.6753	-3.80E+07	36473.	-0.00490	27526.	1.20E+12

4621.	23231.	0.00				
58.4800	3.6673	-3.79E+07	44099.	-0.00495	27478.	1.20E+12
4725.	23178.	0.00				
58.6160	3.6592	-3.78E+07	51896.	-0.00500	27421.	1.20E+12
4830.	23128.	0.00				
58.7520	3.6510	-3.77E+07	59866.	-0.00505	27355.	1.20E+12
4936.	23081.	0.00				
58.8880	3.6427	-3.76E+07	68009.	-0.00510	27280.	1.20E+12
5043.	23035.	0.00				
59.0240	3.6343	-3.75E+07	76328.	-0.00516	27194.	1.20E+12
5152.	22992.	0.00				
59.1600	3.6259	-3.74E+07	84826.	-0.00521	27099.	1.20E+12
5262.	22952.	0.00				
59.2960	3.6173	-3.72E+07	93504.	-0.00526	26994.	1.20E+12
5373.	22913.	0.00				
59.4320	3.6087	-3.71E+07	102364.	-0.00531	26878.	1.20E+12
5485.	22876.	0.00				
59.5680	3.6000	-3.69E+07	111408.	-0.00536	26751.	1.20E+12
5599.	22842.	0.00				
59.7040	3.5912	-3.67E+07	120638.	-0.00541	26614.	1.20E+12
5713.	22809.	0.00				
59.8400	3.5823	-3.65E+07	130057.	-0.00546	26466.	1.20E+12
5829.	22778.	0.00				
59.9760	3.5734	-3.63E+07	139666.	-0.00551	26306.	1.20E+12
5947.	22749.	0.00				
60.1120	3.5644	-3.60E+07	149468.	-0.00556	26135.	1.20E+12
6065.	22722.	0.00				
60.2480	3.5553	-3.58E+07	159465.	-0.00561	25952.	1.20E+12
6185.	22697.	0.00				
60.3840	3.5461	-3.55E+07	169658.	-0.00565	25757.	1.20E+12
6306.	22673.	0.00				
60.5200	3.5368	-3.52E+07	180049.	-0.00570	25551.	1.20E+12
6429.	22651.	0.00				
60.6560	3.5275	-3.49E+07	190642.	-0.00575	25331.	1.20E+12
6552.	22630.	0.00				
60.7920	3.5180	-3.46E+07	201438.	-0.00580	25099.	1.20E+12
6677.	22611.	0.00				
60.9280	3.5085	-3.43E+07	212438.	-0.00584	24854.	1.20E+12
6804.	22593.	0.00				
61.0640	3.4990	-3.39E+07	223646.	-0.00589	24596.	1.20E+12
6931.	22577.	0.00				
61.2000	3.4893	-3.35E+07	235063.	-0.00594	24325.	1.20E+12
7060.	22562.	0.00				
61.3360	3.4796	-3.31E+07	246691.	-0.00598	24040.	1.20E+12
7190.	22549.	0.00				
61.4720	3.4698	-3.27E+07	258533.	-0.00603	23741.	1.20E+12
7322.	22536.	0.00				
61.6080	3.4599	-3.23E+07	270591.	-0.00607	23428.	1.20E+12
7455.	22526.	0.00				
61.7440	3.4500	-3.18E+07	282866.	-0.00611	23100.	1.20E+12

7589.	22516.	0.00				
61.8800	3.4400	-3.14E+07	295361.	-0.00616	22758.	1.20E+12
7724.	22508.	0.00				
62.0160	3.4299	-3.09E+07	308078.	-0.00620	22401.	1.20E+12
7861.	22501.	0.00				
62.1520	3.4197	-3.04E+07	321019.	-0.00624	22029.	1.20E+12
7999.	22495.	0.00				
62.2880	3.4095	-2.98E+07	334186.	-0.00628	21641.	1.20E+12
8138.	22491.	0.00				
62.4240	3.3992	-2.93E+07	347582.	-0.00632	21238.	1.20E+12
8278.	22488.	0.00				
62.5600	3.3889	-2.87E+07	361208.	-0.00636	20818.	1.20E+12
8420.	22485.	0.00				
62.6960	3.3785	-2.81E+07	375066.	-0.00640	20383.	1.20E+12
8563.	22484.	0.00				
62.8320	3.3680	-2.75E+07	389159.	-0.00644	19930.	1.20E+12
8708.	22485.	0.00				
62.9680	3.3574	-2.68E+07	403489.	-0.00648	19461.	1.20E+12
8853.	22486.	0.00				
63.1040	3.3468	-2.62E+07	418057.	-0.00651	18975.	1.20E+12
9000.	22488.	0.00				
63.2400	3.3362	-2.55E+07	432866.	-0.00655	18472.	1.20E+12
9148.	22491.	0.00				
63.3760	3.3255	-2.47E+07	447918.	-0.00658	17950.	1.20E+12
9298.	22496.	0.00				
63.5120	3.3147	-2.40E+07	463215.	-0.00661	17411.	1.20E+12
9449.	22501.	0.00				
63.6480	3.3039	-2.32E+07	478759.	-0.00665	16854.	1.20E+12
9601.	22508.	0.00				
63.7840	3.2930	-2.24E+07	494553.	-0.00668	16278.	1.20E+12
9754.	22515.	0.00				
63.9200	3.2821	-2.16E+07	510597.	-0.00671	15683.	1.20E+12
9908.	22524.	0.00				
64.0560	3.2711	-2.08E+07	526894.	-0.00674	15069.	1.20E+12
10064.	22534.	0.00				
64.1920	3.2601	-1.99E+07	543446.	-0.00676	14436.	1.20E+12
10221.	22544.	0.00				
64.3280	3.2490	-1.90E+07	560256.	-0.00679	13783.	1.20E+12
10379.	22556.	0.00				
64.4640	3.2379	-1.81E+07	577324.	-0.00682	13109.	1.20E+12
10538.	22568.	0.00				
64.6000	3.2268	-1.71E+07	593704.	-0.00684	12416.	1.20E+12
9536.	24321.	0.00				
64.7360	3.2156	-1.61E+07	607974.	-0.00686	11704.	1.20E+12
7951.	27627.	0.00				
64.8720	3.2044	-1.51E+07	619429.	-0.00688	10977.	1.20E+12
6087.	33159.	0.00				
65.0080	3.1932	-1.41E+07	627398.	-0.00690	10238.	1.20E+12
3679.	46354.	0.00				
65.1440	3.1819	-1.31E+07	629159.	-0.00692	9491.	1.20E+12

-1521.	61237.	0.00				
65.2800	3.1706	-1.21E+07	623834.	-0.00694	8748.	1.20E+12
-5005.	38792.	0.00				
65.4160	3.1592	-1.11E+07	613860.	-0.00695	8015.	1.20E+12
-7217.	30950.	0.00				
65.5520	3.1479	-1.01E+07	600554.	-0.00697	7295.	1.20E+12
-9089.	26945.	0.00				
65.6880	3.1365	-9089988.	584349.	-0.00698	6593.	1.20E+12
-10771.	24397.	0.00				
65.8240	3.1251	-8150675.	565502.	-0.00699	5912.	1.20E+12
-12326.	22591.	0.00				
65.9600	3.1137	-7244190.	544186.	-0.00700	5254.	1.20E+12
-13796.	21234.	0.00				
66.0960	3.1022	-6374450.	520474.	-0.00701	4623.	1.20E+12
-15263.	20248.	0.00				
66.2320	3.0908	-5545363.	494353.	-0.00702	4022.	1.20E+12
-16747.	19521.	0.00				
66.3680	3.0793	-4760881.	465796.	-0.00703	3453.	1.20E+12
-18249.	18970.	0.00				
66.5040	3.0678	-4025004.	434775.	-0.00703	2919.	1.20E+12
-19767.	18542.	0.00				
66.6400	3.0563	-3341775.	401262.	-0.00704	2424.	1.20E+12
-21303.	18205.	0.00				
66.7760	3.0448	-2715284.	365229.	-0.00704	1969.	1.20E+12
-22856.	17937.	0.00				
66.9120	3.0333	-2149667.	326647.	-0.00705	1559.	1.20E+12
-24426.	17722.	0.00				
67.0480	3.0218	-1649107.	286660.	-0.00705	1196.	1.20E+12
-24578.	16580.	0.00				
67.1840	3.0103	-1214008.	246430.	-0.00705	880.5042	1.20E+12
-24724.	15585.	0.00				
67.3200	2.9988	-844759.	205961.	-0.00705	612.6929	1.20E+12
-24871.	14712.	0.00				
67.4560	2.9873	-541752.	165252.	-0.00705	392.9257	1.20E+12
-25018.	13941.	0.00				
67.5920	2.9758	-305378.	124302.	-0.00705	221.4870	1.20E+12
-25166.	13801.	0.00				
67.7280	2.9643	-136032.	83110.	-0.00705	98.6622	1.20E+12
-25314.	13937.	0.00				
67.8640	2.9528	-34107.	41676.	-0.00705	24.7375	1.20E+12
-25463.	14073.	0.00				
68.0000	2.9413	0.00	0.00	-0.00705	0.00	1.20E+12
-25612.	7105.	0.00				

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          =      3.95871904 inches
Computed slope at pile head   =      0.00034515 radians
Maximum bending moment        =     -38100826. inch-lbs
Maximum shear force           =      629159. lbs
Depth of maximum bending moment =    57.66400000 feet below pile head
Depth of maximum shear force   =    65.14400000 feet below pile head
Number of iterations          =           22
Number of zero deflection points =           0
  
```

----- Summary of Pile-head Responses for Conventional Analyses -----

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians
  
```

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in
		lbs	in-lbs	lbs	inches	radians	
1	V, lb	629159.	M, in-lb	0.00	3.9587	3.45E-04	
		-3.81E+07					

```

Maximum pile-head deflection = 3.9587190428 inches
Maximum pile-head rotation   = 0.0003451549 radians = 0.019776 deg.
  
```

The analysis ended normally.

APPENDIX D

Pipe Pile Structural Resistance

Check Moment and Shear Capacity of 60"Dia x 1/2"Wall Open-end Pipe Pile

ϕ_f	1		Per AASHTO 6.15.2 and AASHTO 6.5.4.2
ϕ_v	1		Per AASHTO 6.5.4.2
OD	60	in	
t	0.5	in	
ID	59	in	
f_y	50	ksi	
E	29000	ksi	
A	93	in ²	
I	41363	in ⁴	
c	30	in	
S	1379	in ³	
Z	1770	in ³	
D/t	120	--	
E/F _y	580	--	
(D/t)/(E/F _y)	0.21	--	
M _e	68,938	in-kip	
M _p	88,508	in-kip	
Local1 M _p	75,935	in-kip	AASHTO Eq. (6.12.2.2.3-2)
Local2 M _p	109,956	in-kip	AASHTO Eq. (6.12.2.2.3-3)
M _n	75,935	in-kip	
ϕM_n	75,935	in-kip	

OK: Greater than max M of 71,500 in-kips

L _v	68	ft	Conservatively assume entire length of pile
F _{cr1}	29	ksi	AASHTO Eq. (6.12.1.2.3b-2)
F _{cr2}	17	ksi	AASHTO Eq. (6.12.1.2.3b-3)
F _{cr}	29	ksi	
V _n	1355	kips	AASHTO Eq. (6.12.1.2.3b-1)
ϕV_n	1355	kips	

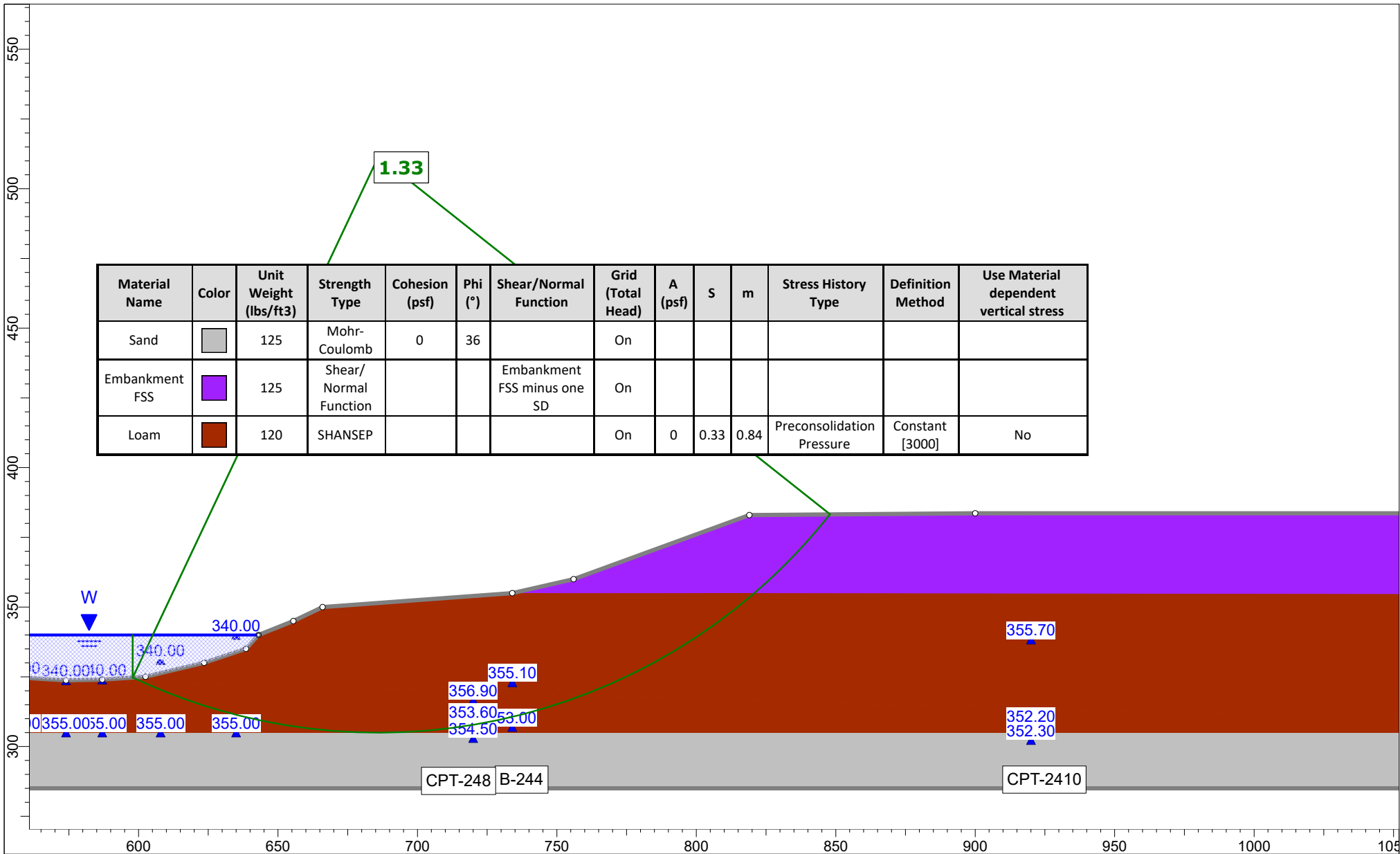
OK: Greater than max V of 935 kips

APPENDIX E

Pipe Pile Stability Model Results

APPENDIX F

East Embankment Stability Model Results



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Shear/Normal Function	Grid (Total Head)	A (psf)	S	m	Stress History Type	Definition Method	Use Material dependent vertical stress
Sand		125	Mohr-Coulomb	0	36		On						
Embankment FSS		125	Shear/Normal Function			Embankment FSS minus one SD	On						
Loam		120	SHANSEP				On	0	0.33	0.84	Preconsolidation Pressure	Constant [3000]	No

	Project		IL-13 over Big Muddy	
	Group		East Existing	Scenario Master Scenario
	Modeled by		A. Boeckmann	Checked by D. Ding
	Date		8/9/2024	File Name BigMuddy Slide East Bank rev2 all grid points.slmd

APPENDIX G

Driveability Analysis Results

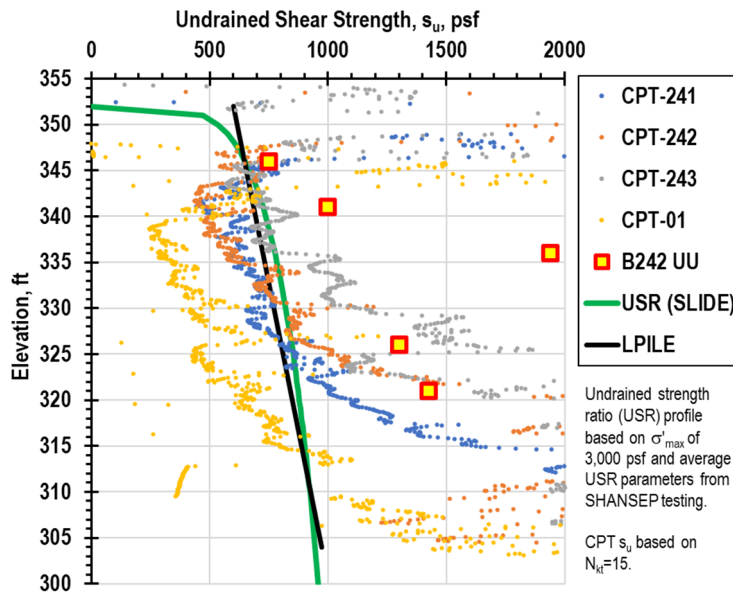
Pile Driveability

Overview

Evaluate driveability of 60-inch diameter by 0.5-inch wall thickness open-ended pipe piles at Big Muddy site to determine what size hammer can be used to drive piles without overstressing or meeting refusal. Use GRLWEAP 2010 to perform the analysis.

Inputs

Soil profile consists of silty loam over sand. Strength information for the silty loam is shown in the plot below. For the sand, SPT blow counts range from 10 to 36 blows/ft, averaging 24.



Use this information to evaluate static axial resistance per the inputs shown in the table below. The sand is conservatively assumed to be dense.

Soil Type	γ_t (pcf)	Cohesion	β	N_t	ϕ (°)	α	s_u (psf)	Set-Up Factor
Loam (Clayey Silt)	120	Y				0.8	800	2.5
Dense Sand	125	N	0.45	150	41			1.8

Corresponding unit side resistance is 0.6 ksf in the loam, and varies from 1.3 ksf at the top of sand to 1.8 ksf at the bottom. Equivalent unit tip resistance is calculated as the sum of end bearing resistance for the pipe plus side resistance on the interior of the pipe, divided by the pile cross-sectional area (for the wall only, excluding the inside of the pipe). For the loam, the equivalent unit tip resistance is 194 ksf. For the sand, the equivalent unit tip resistance varies from 634 ksf at the top of sand to 1028 ksf at the bottom of sand.

Quake and damping values are shown in the table below and are consistent with GRLWEAP recommendations.

Soil Type	Skin Quake, in.	Toe Quake, in.	Skin Damping, s/ft	Toe Damping, s/ft
Loam (Clayey Silt)	0.1	0.1	0.15	0.15
Dense Sand	0.1	0.1	0.05	0.15



Project Big Muddy Slide Stabilization
 DBA Project No. 23-163
 Performed by AZB Date 6/19/2024
 Reviewed by DSG Date 6/19/2024

Perform the analysis with a Delmag D46 hammer. Use the recommended driving system for a 42-inch steel pipe pile (the largest system available in GRLWEAP). Use the "driveability" analysis option in GRLWEAP.

Results

As shown below, driving to the bottom of the sand layer requires 6.7 blows/inch, which is less than refusal. The resulting compressive stress in the pile is 21 ksi, which is acceptable at approximately 42% of the yield stress.

Dan Brown and Associates, PLLC
 Big Muddy Slide Stabilization

Jun 19 2024
 GRLWEAP Version 2010

Gain/Loss 1 at Shaft and Toe 0.400 / 1.000

Depth ft	Ultimate Capacity kips	Friction kips	End Bearing kips	Blow Count blows/in	Comp. Stress ksi	Tension Stress ksi	Stroke ft	ENTHRU kips-ft
6.0	148.6	22.6	126.0	0.5	16.746	-8.040	6.78	47.8
12.0	171.2	45.2	126.0	0.6	17.146	-7.735	6.92	46.6
18.0	193.8	67.9	126.0	0.7	17.561	-7.398	7.04	45.5
24.0	216.4	90.5	126.0	0.8	17.937	-7.022	7.16	44.4
30.0	239.1	113.1	126.0	0.9	18.152	-6.687	7.27	43.7
36.0	261.7	135.7	126.0	1.0	18.289	-6.455	7.37	42.8
42.0	284.3	158.3	126.0	1.1	18.489	-6.299	7.47	42.1
46.2	300.1	174.1	126.0	1.2	18.599	-6.197	7.53	41.7
49.8	636.9	202.0	434.9	3.4	20.059	-1.697	8.22	40.2
55.8	788.0	276.3	511.7	4.2	20.239	-1.150	8.34	39.9
61.8	947.0	358.6	588.4	5.2	20.500	-1.257	8.46	40.3
66.2	1067.5	423.3	644.2	6.3	20.502	-1.563	8.47	39.9
68.0	1119.0	451.5	667.5	6.7	20.687	-1.515	8.50	39.8

Total Continuous Driving Time 38.00 minutes; Total Number of Blows 1564 (starting at penetration 6.0 ft)