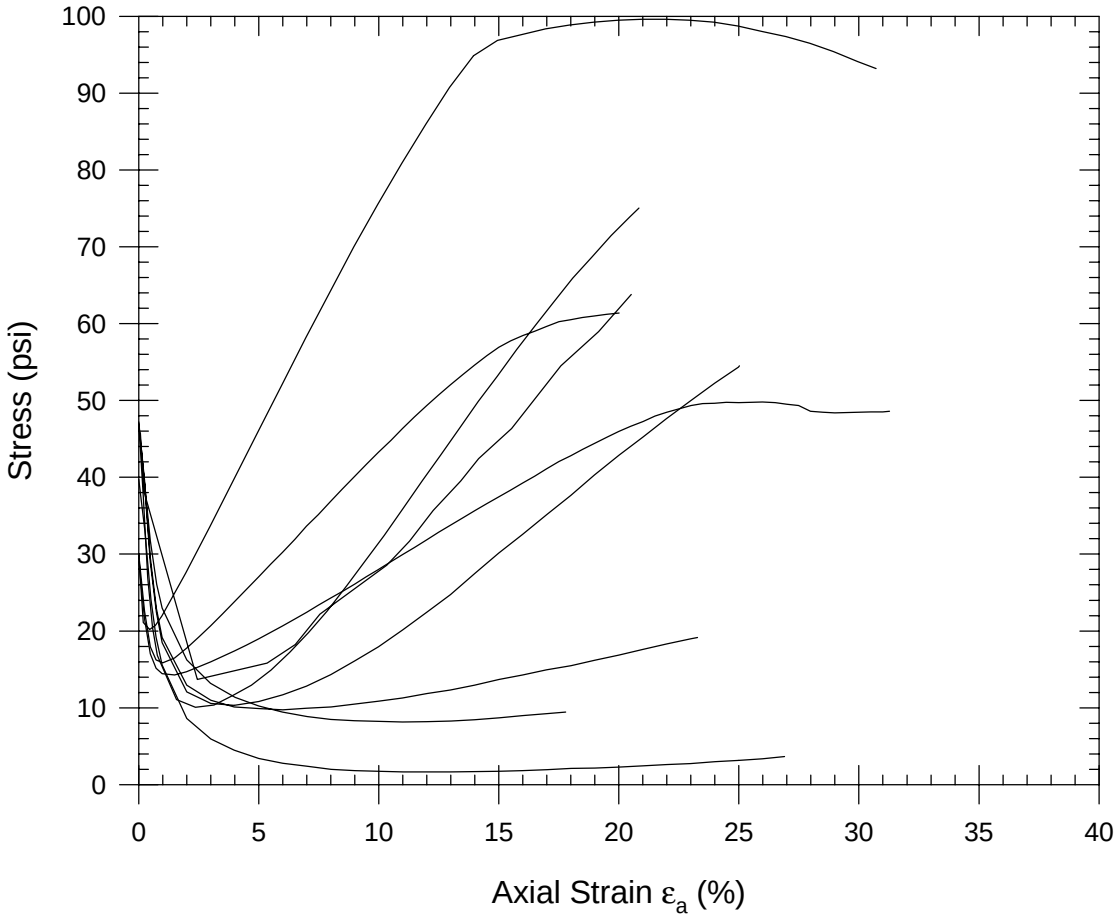
APPENDIX G CU TRIAXIAL TEST DATA

Light Castle Sand - Conventional End Platens

Light Castle Sand
Conventional Ends
Minor Principal Effective Stress-Strain
σ_3'

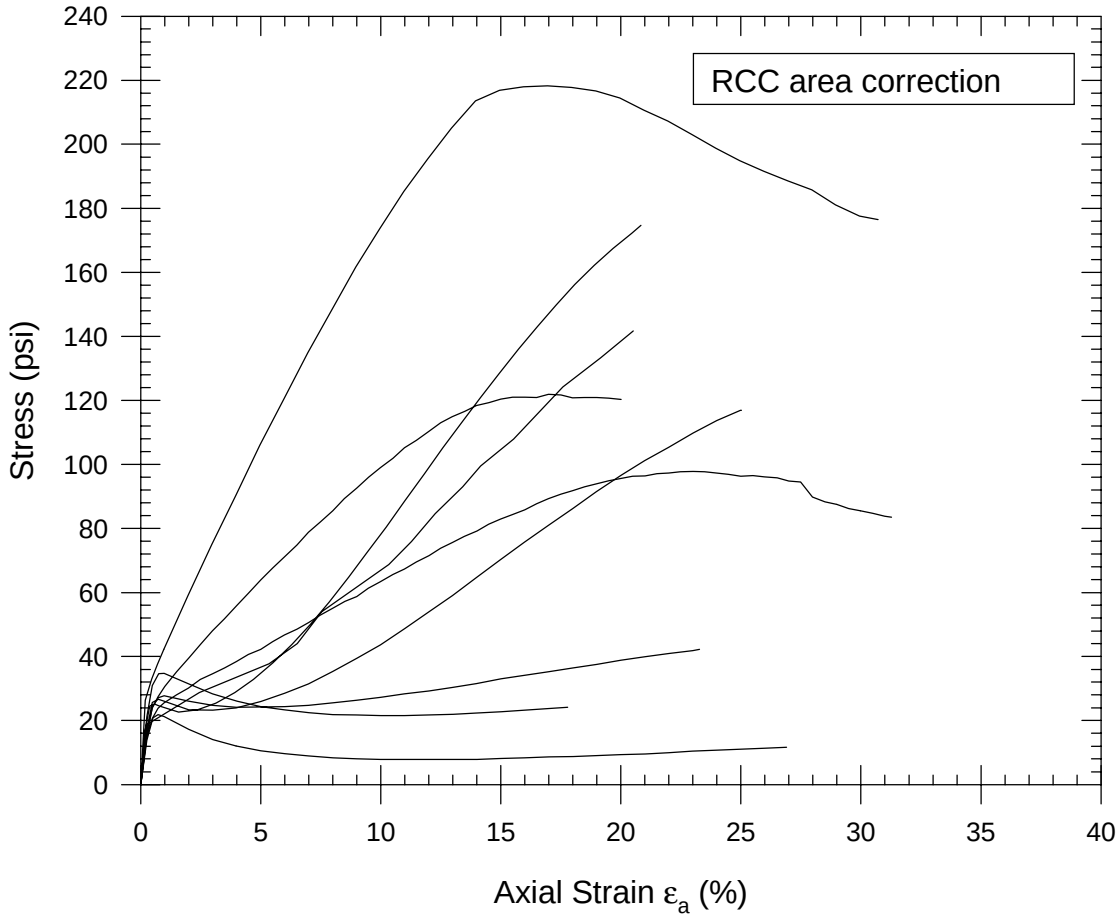


e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

Deviator Stress-Strain

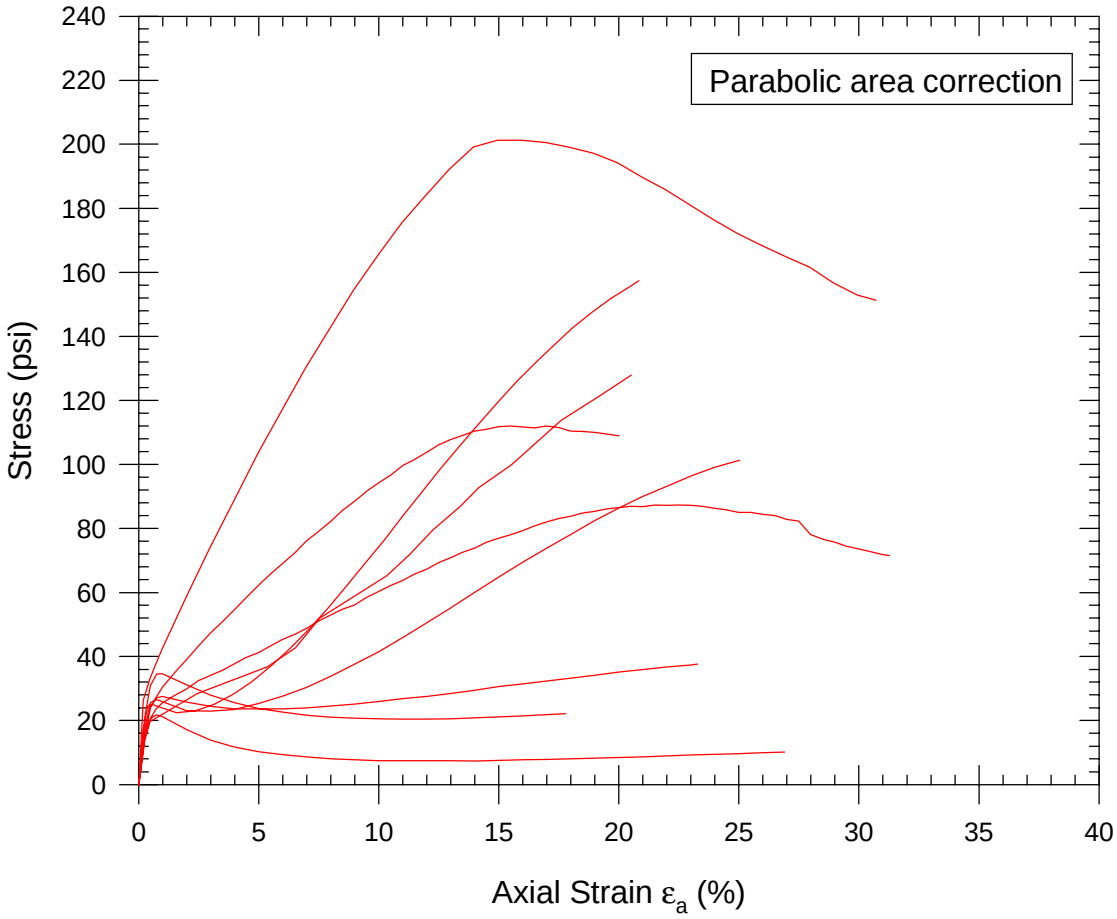
σ_1-σ_3



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

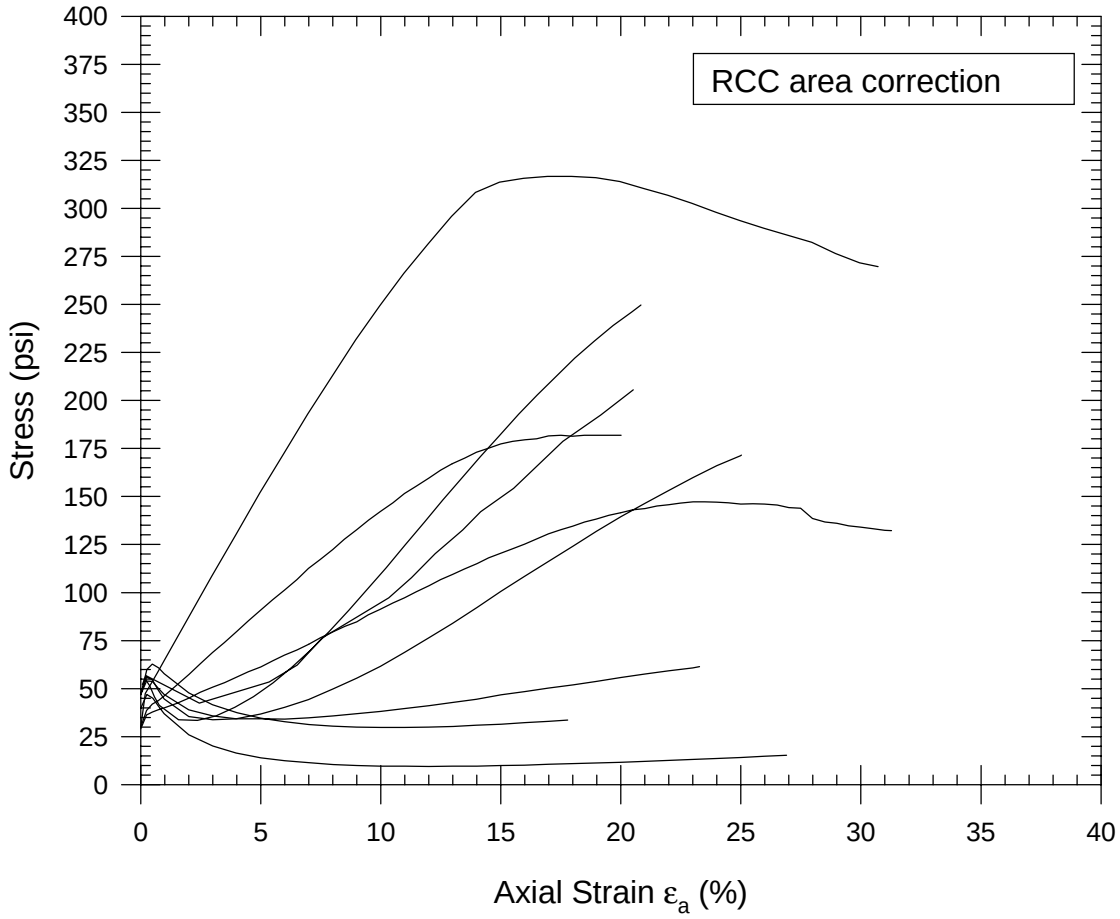
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

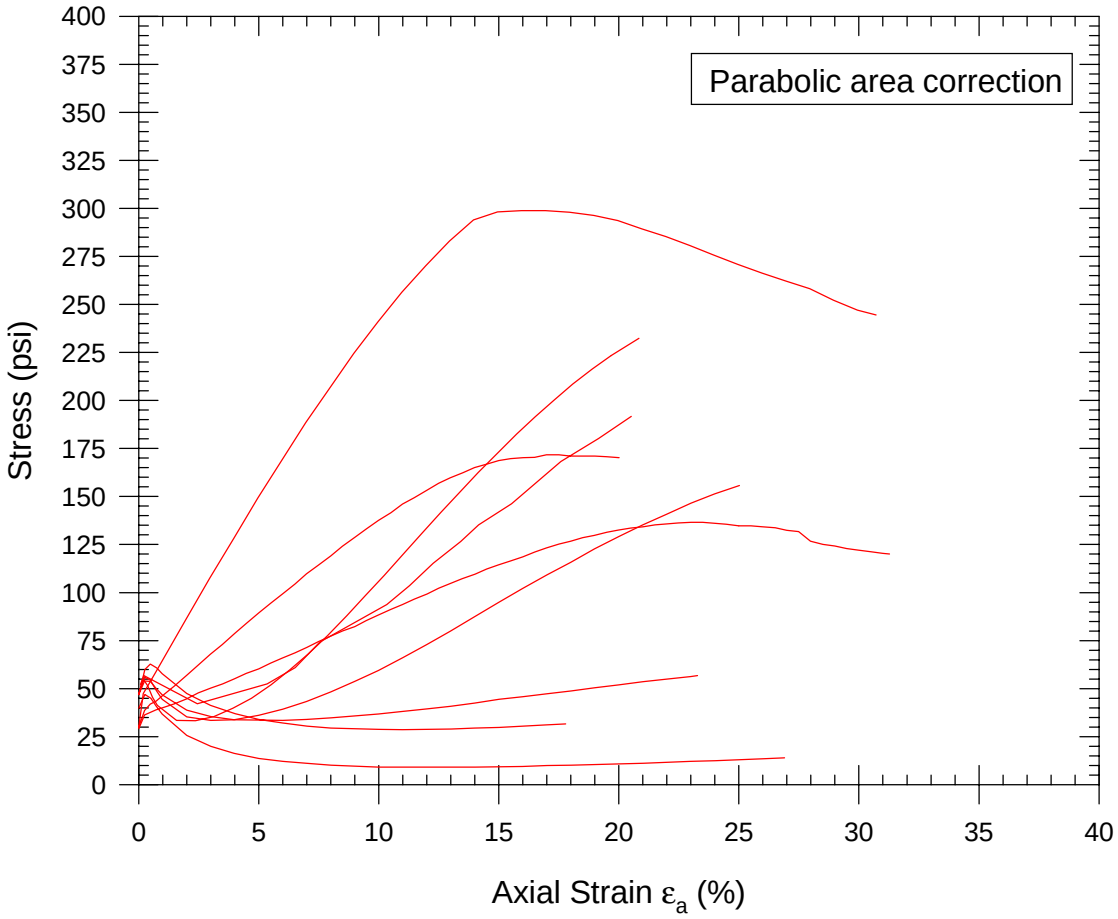
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

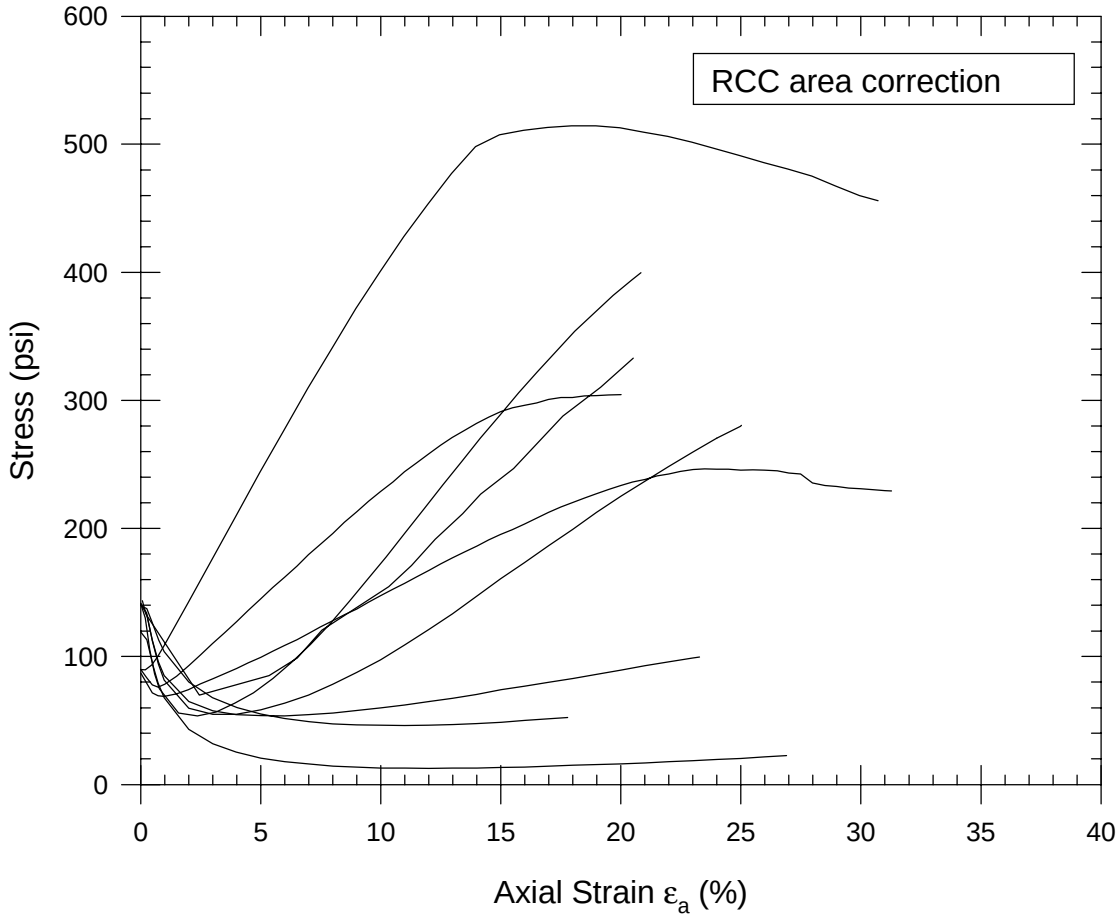
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

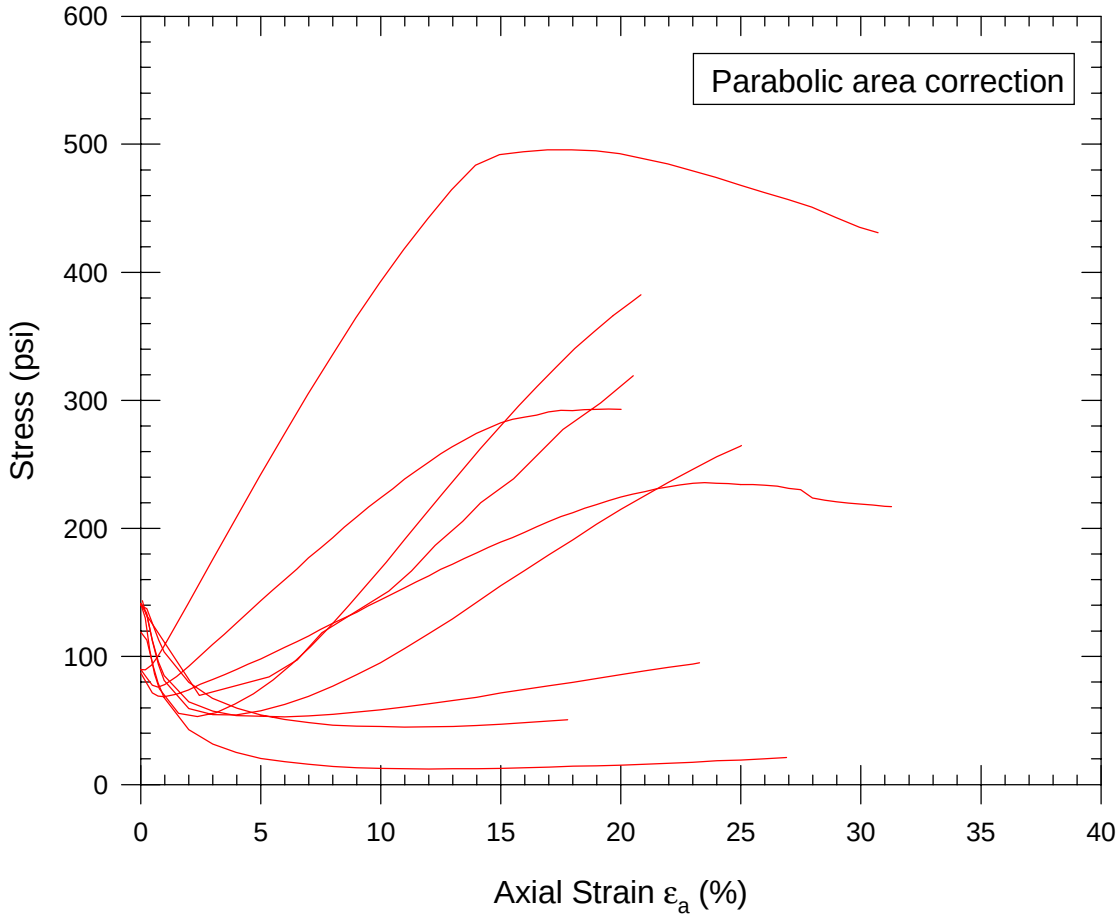
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

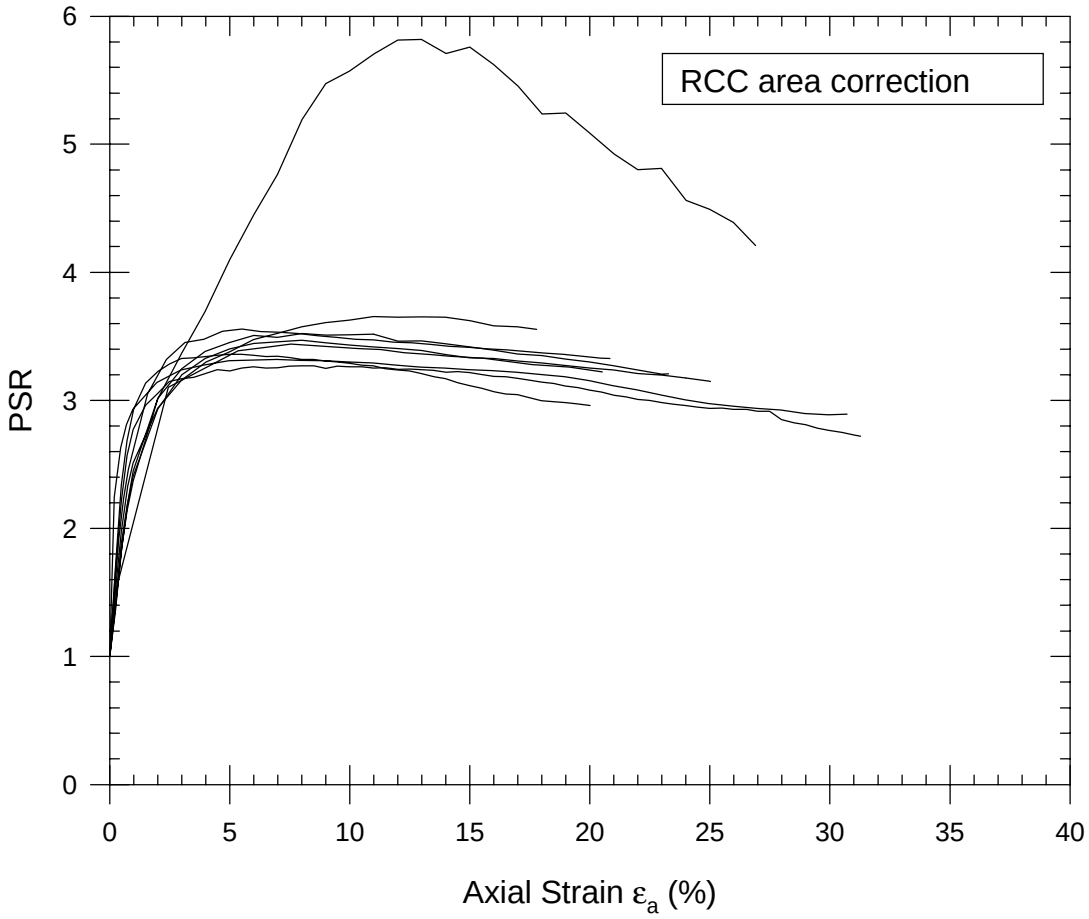
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

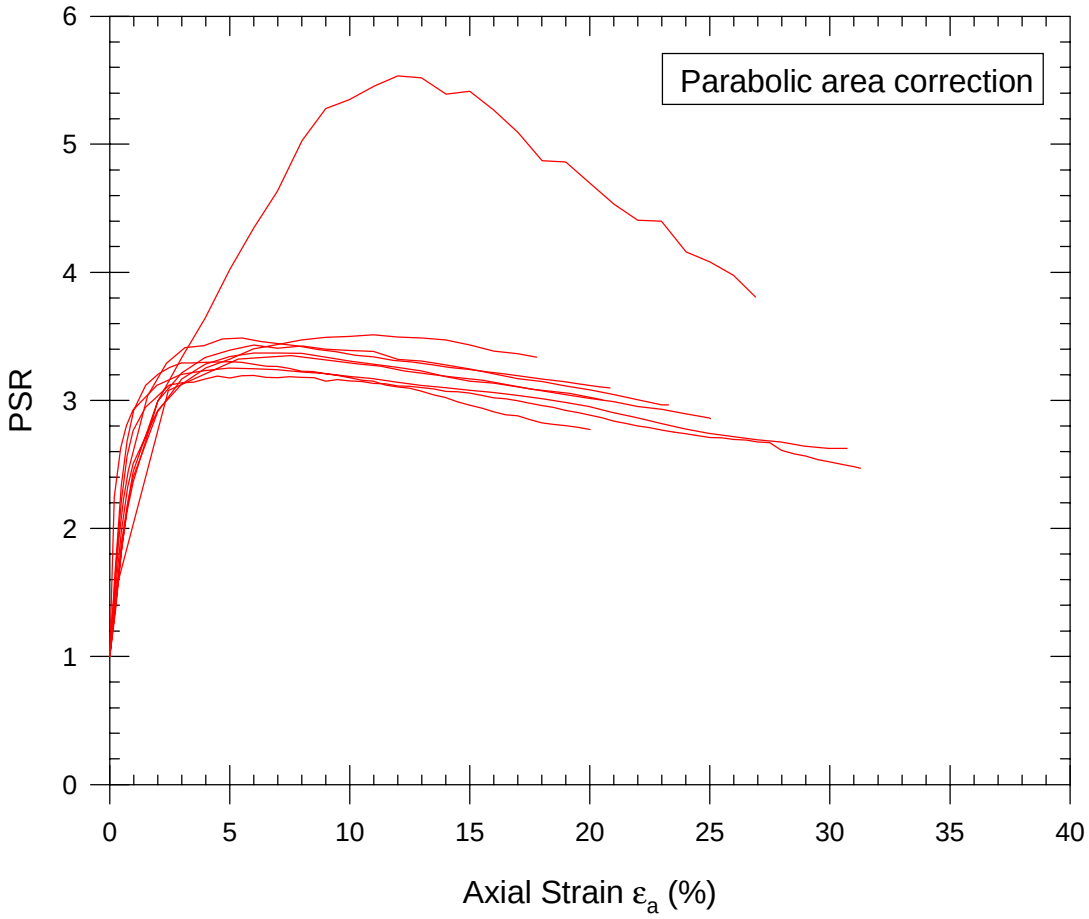
Principal Stress Ratio



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

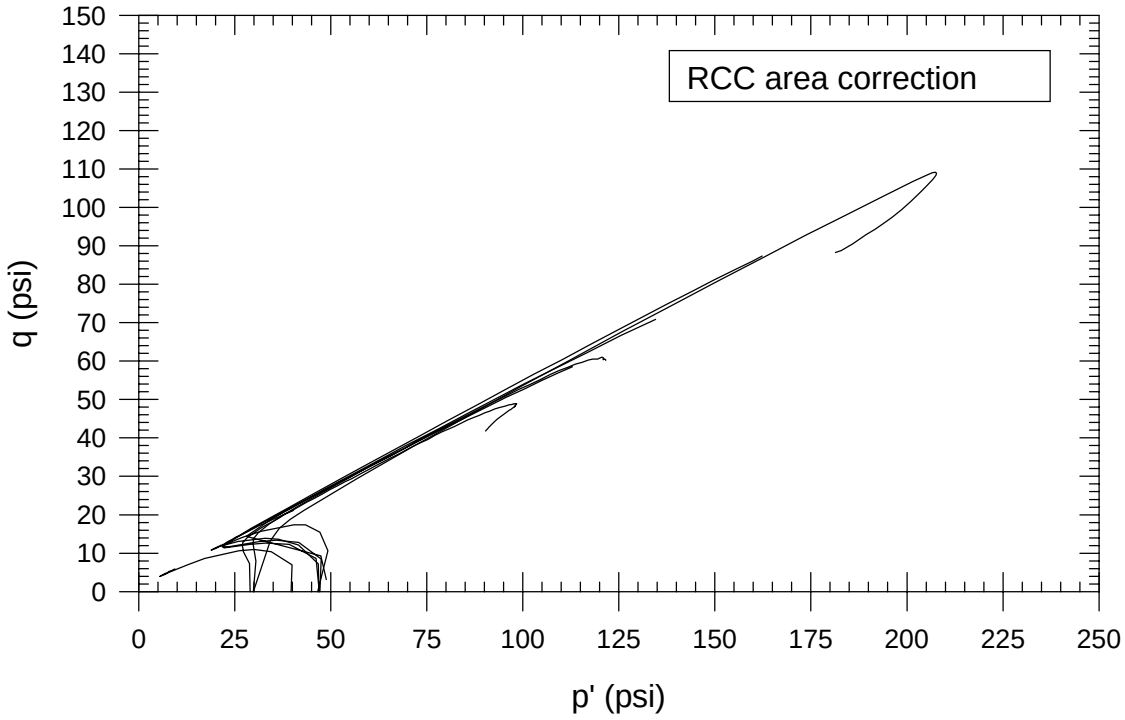
Principal Stress Ratio



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

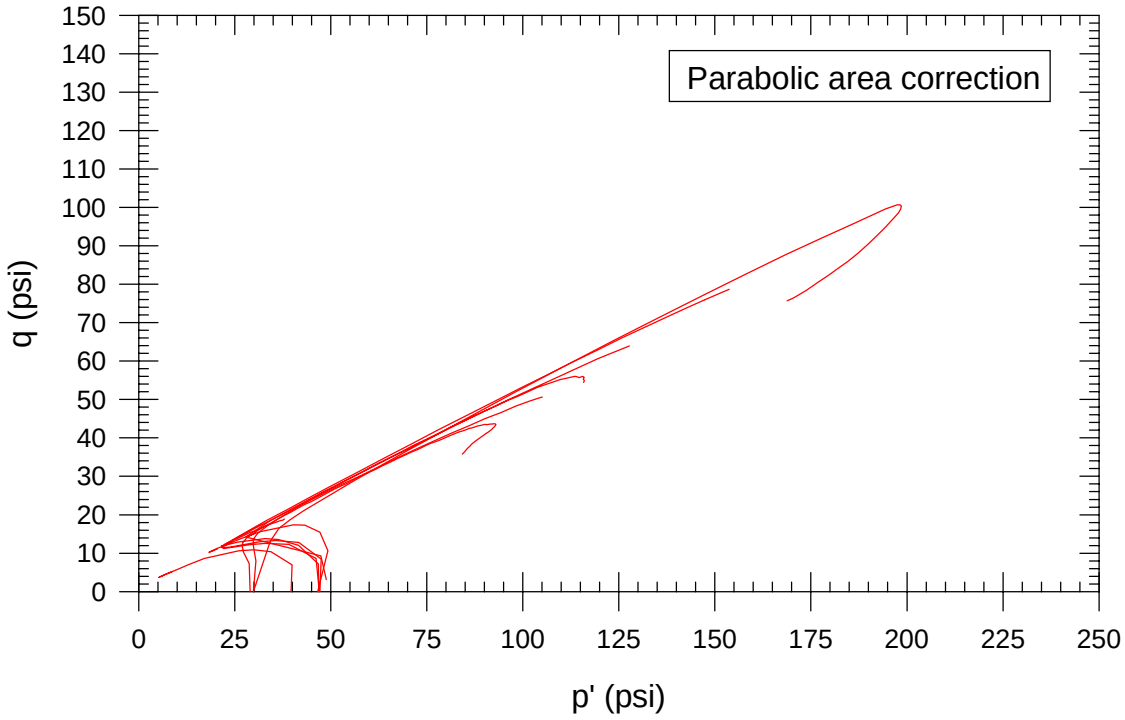
Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Light Castle Sand
Conventional Ends

Stress Paths

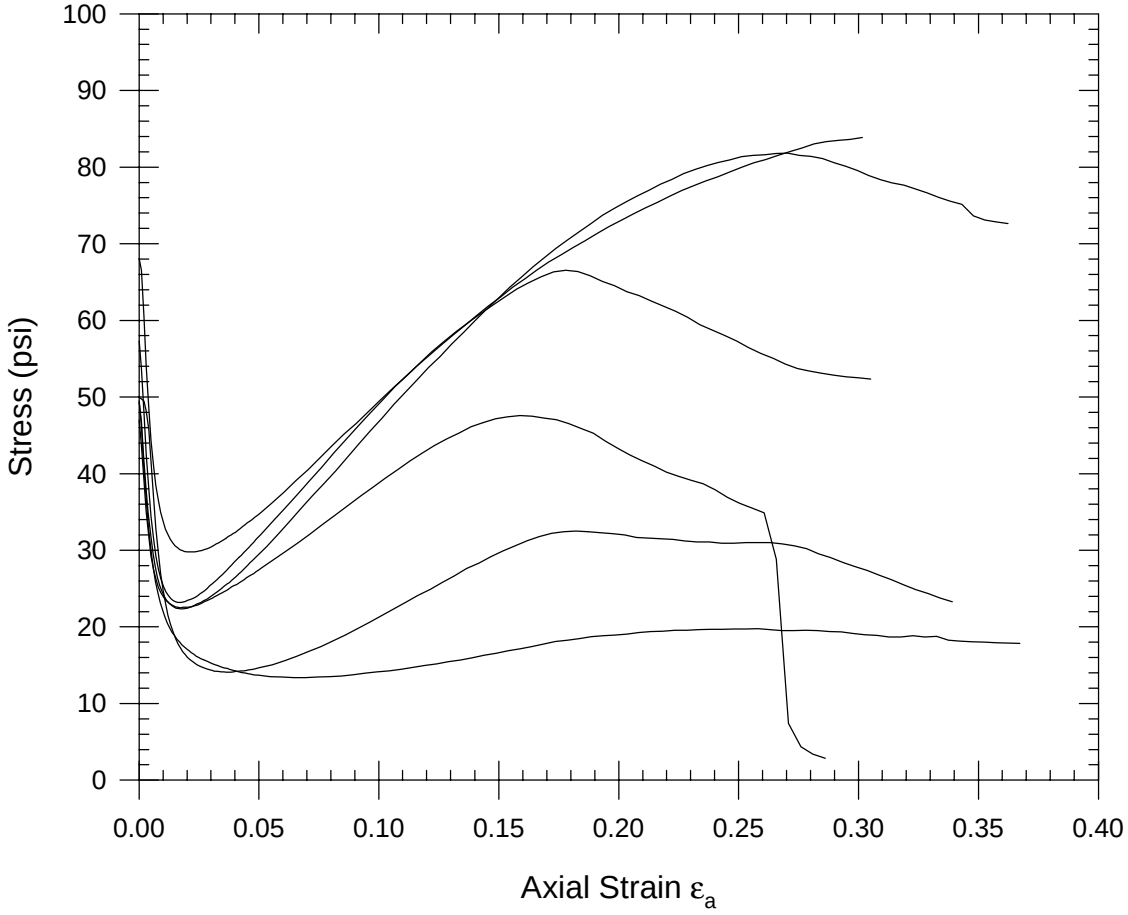


e	$\sigma_{3\,con}'$ (psi)
0.756	30
0.760	30
0.760	46
0.764	47
0.779	47
0.796	29
0.805	47
0.844	47
0.852	40

Monterey Sand - Conventional End Platens

Monterey Sand
Conventional Ends

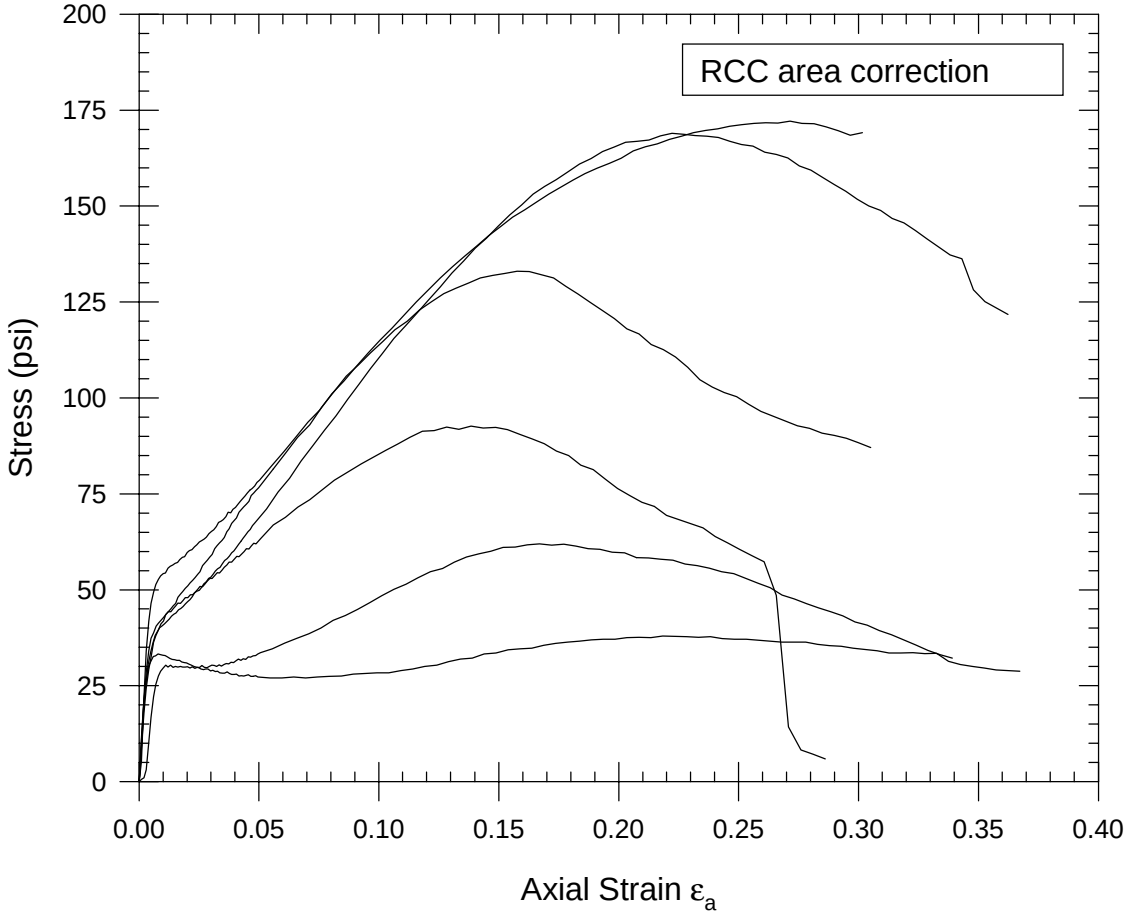
Minor Principal Effective Stress-Strain
σ_3'



e	$\sigma_{3\,con}'$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

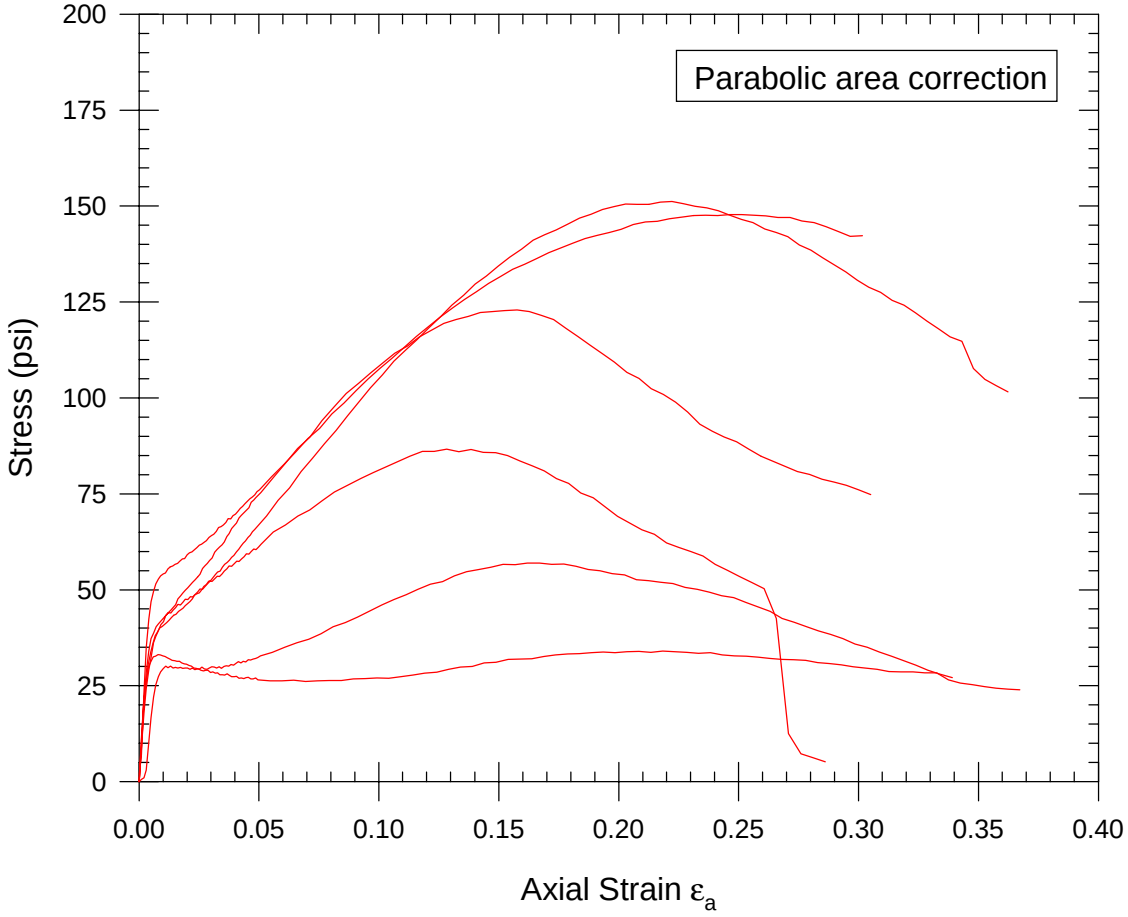
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_3'_{con}$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

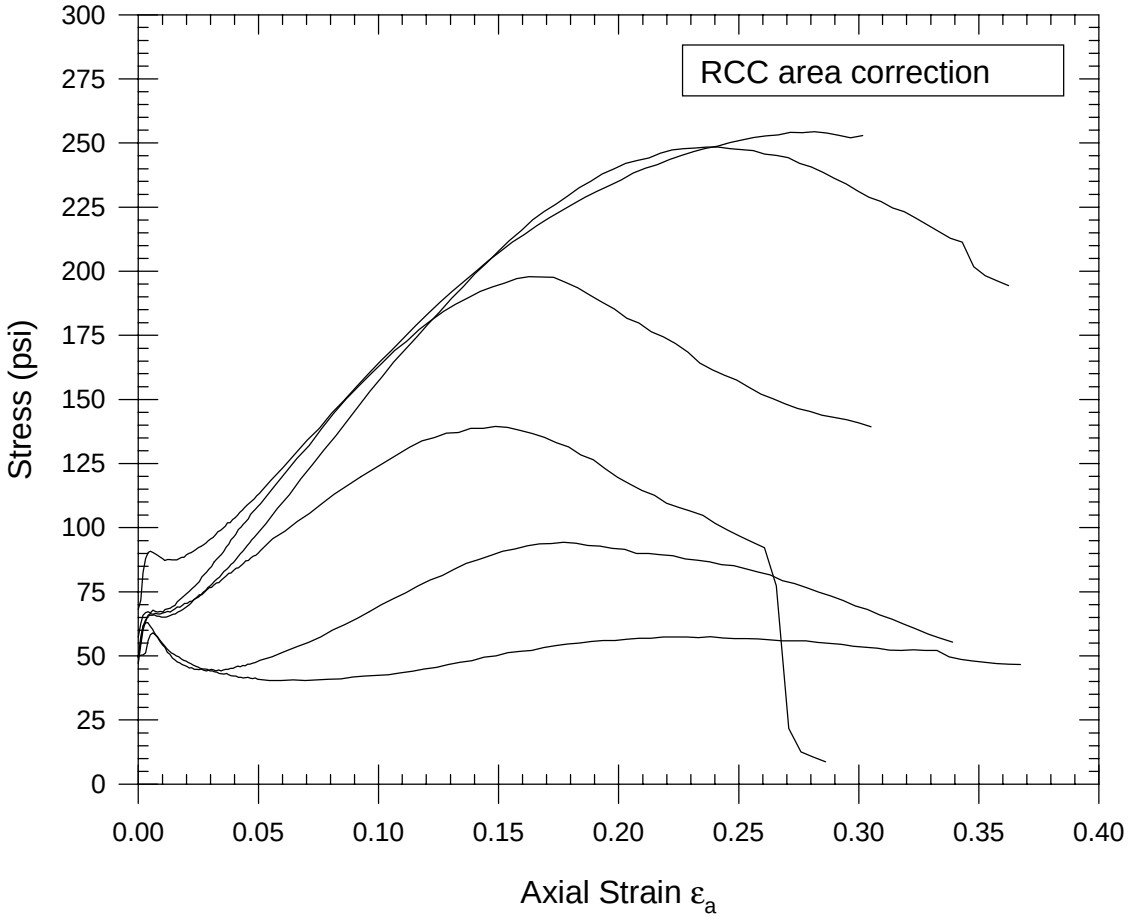
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_3'_{con}$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

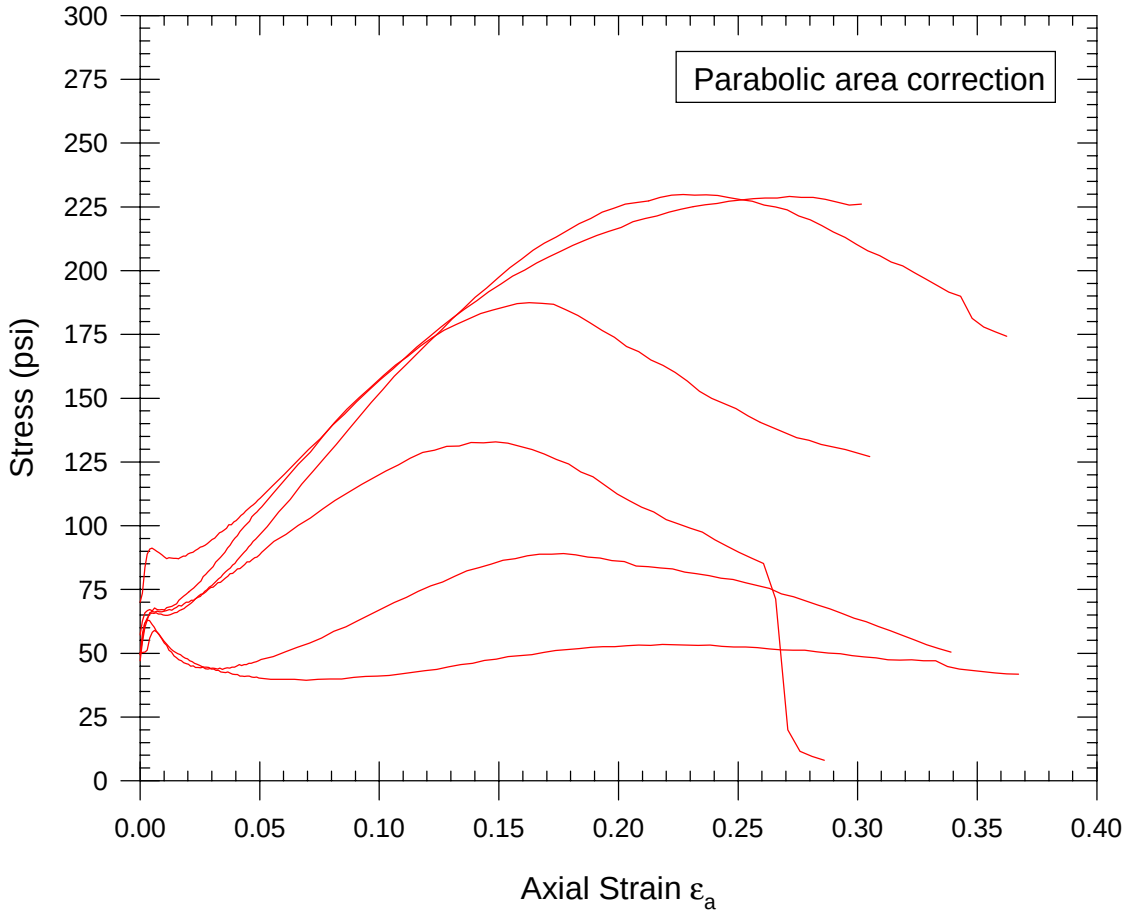
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

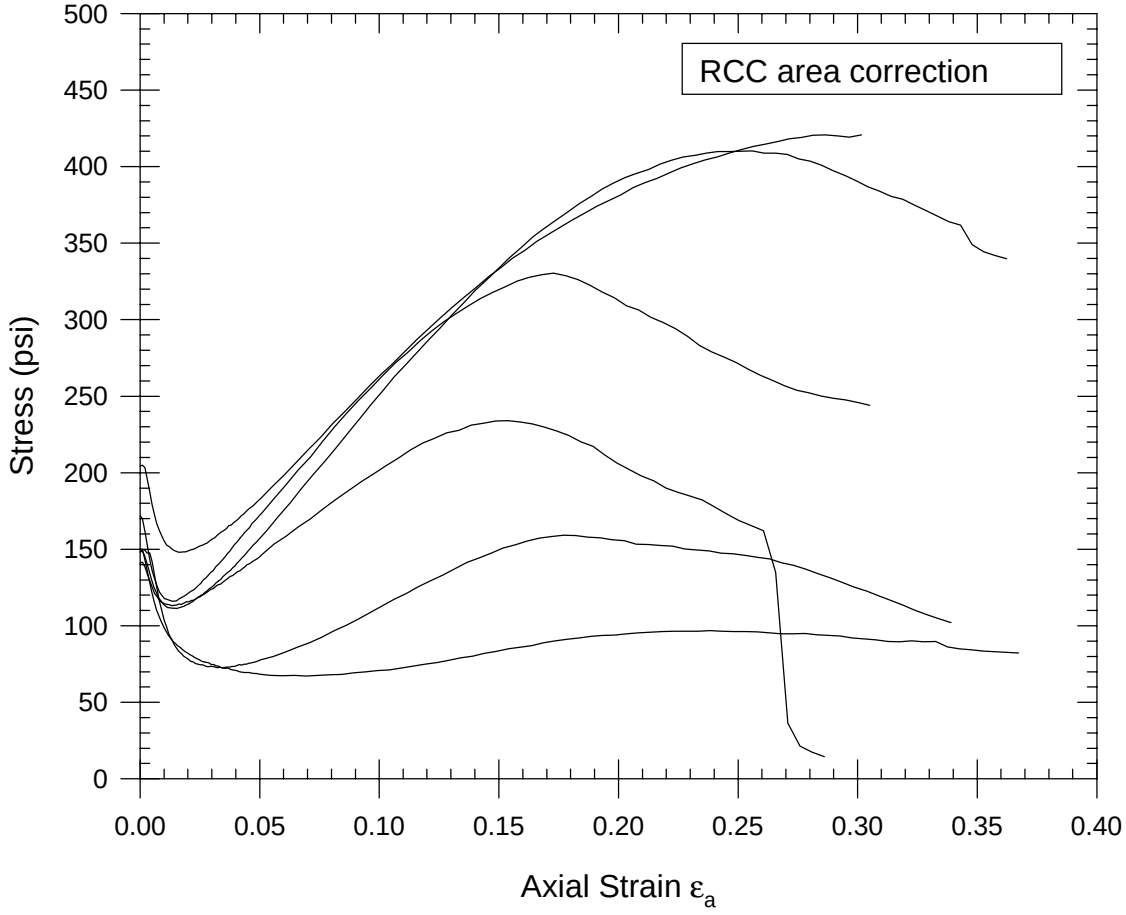
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_3'_{con}$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

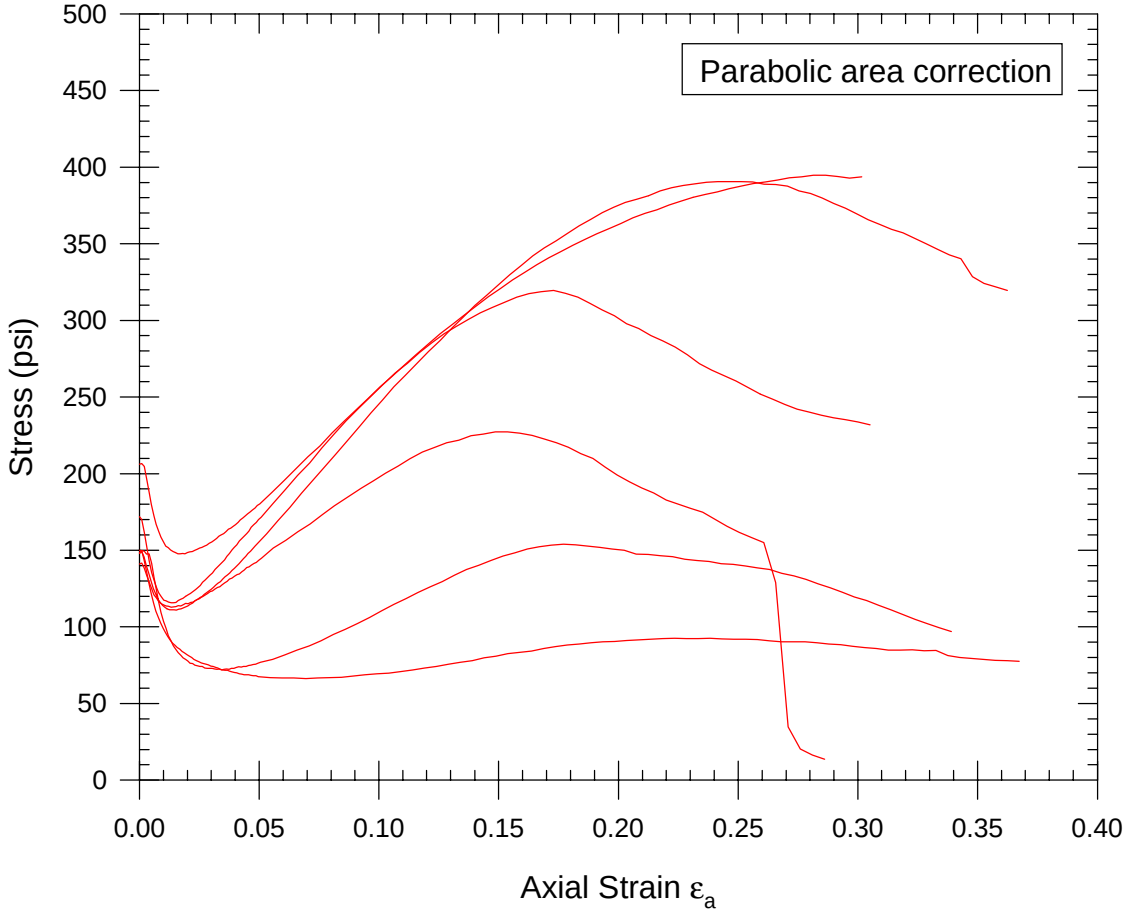
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

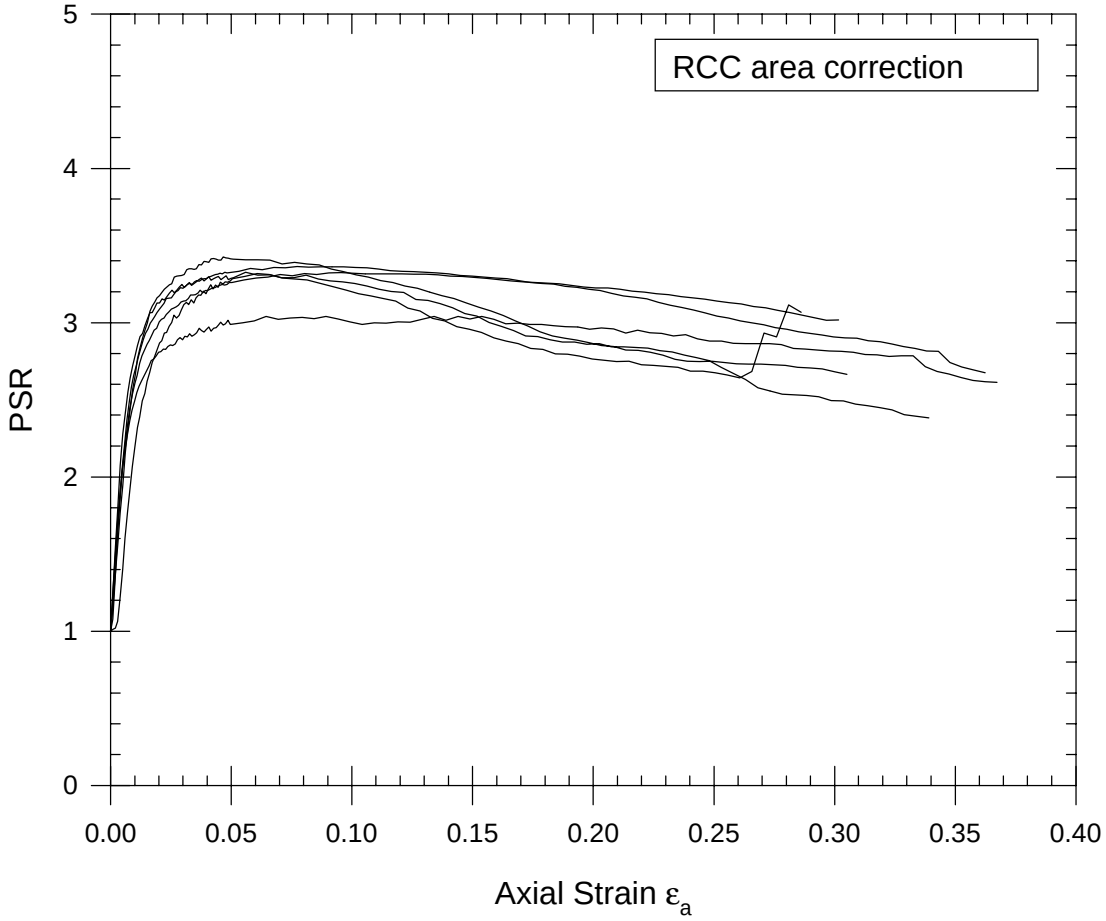
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_3'_{con}$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

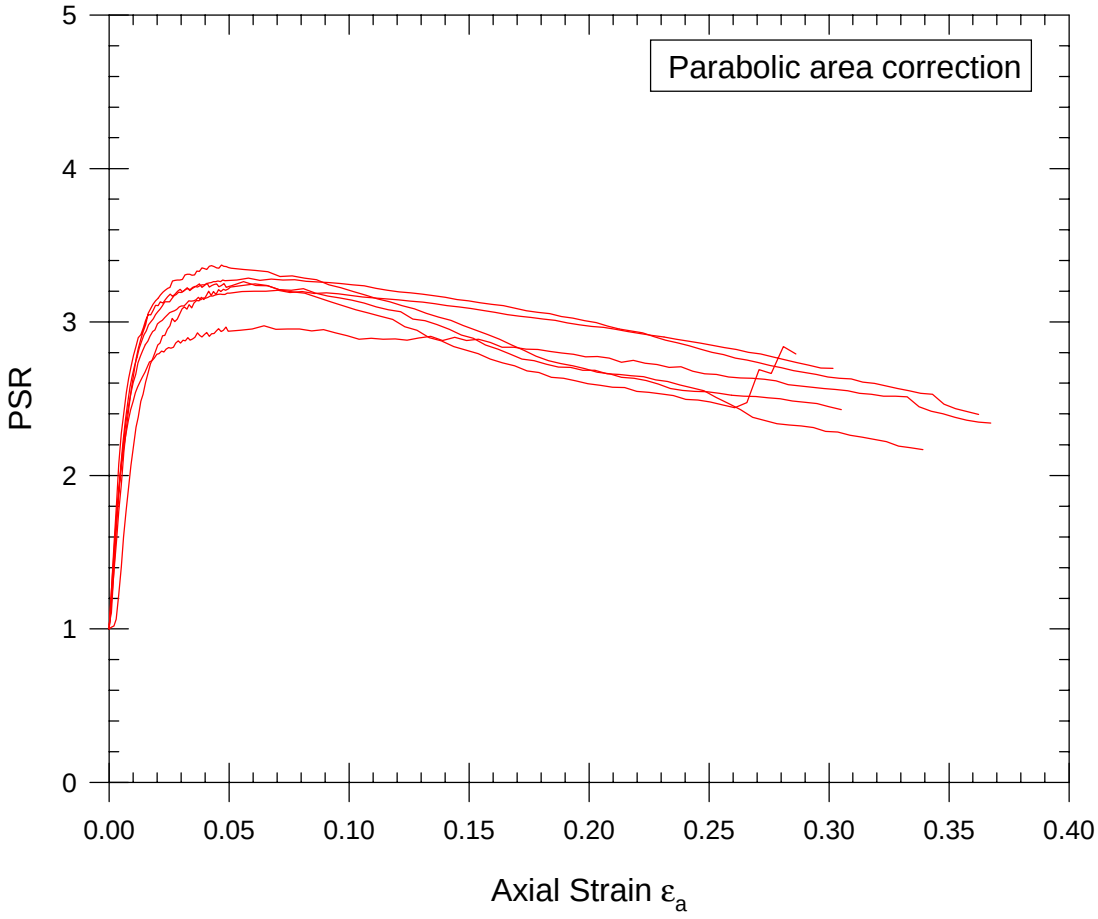
Principal Stress Ratio



e	$\sigma_{3'con}$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

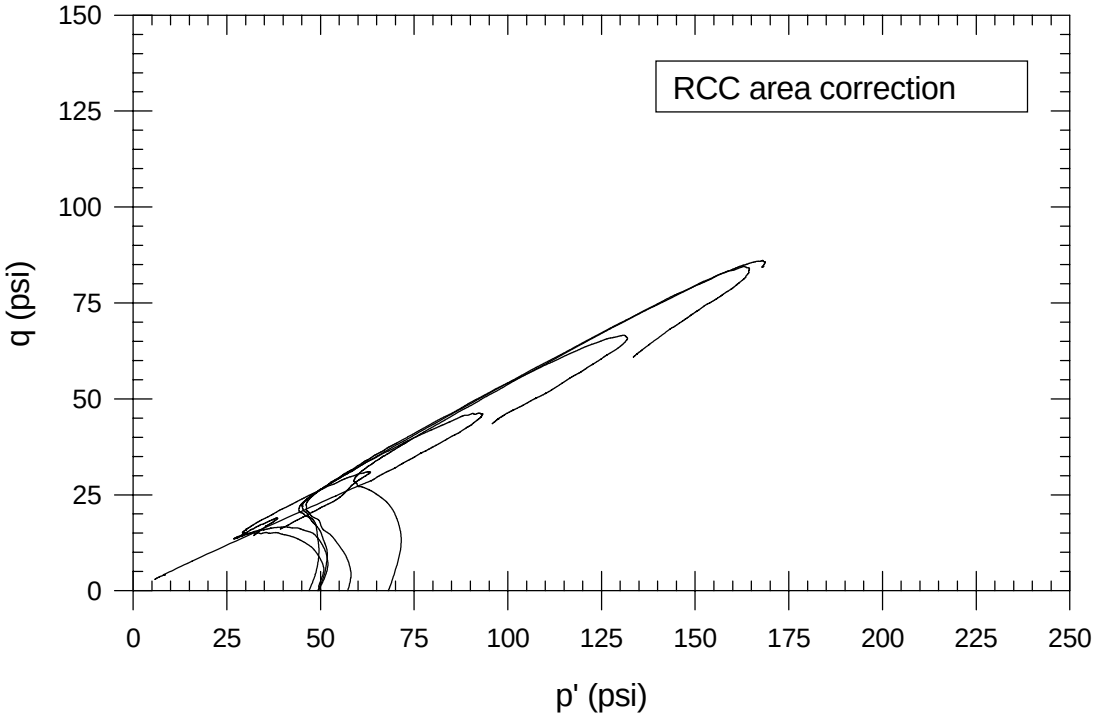
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

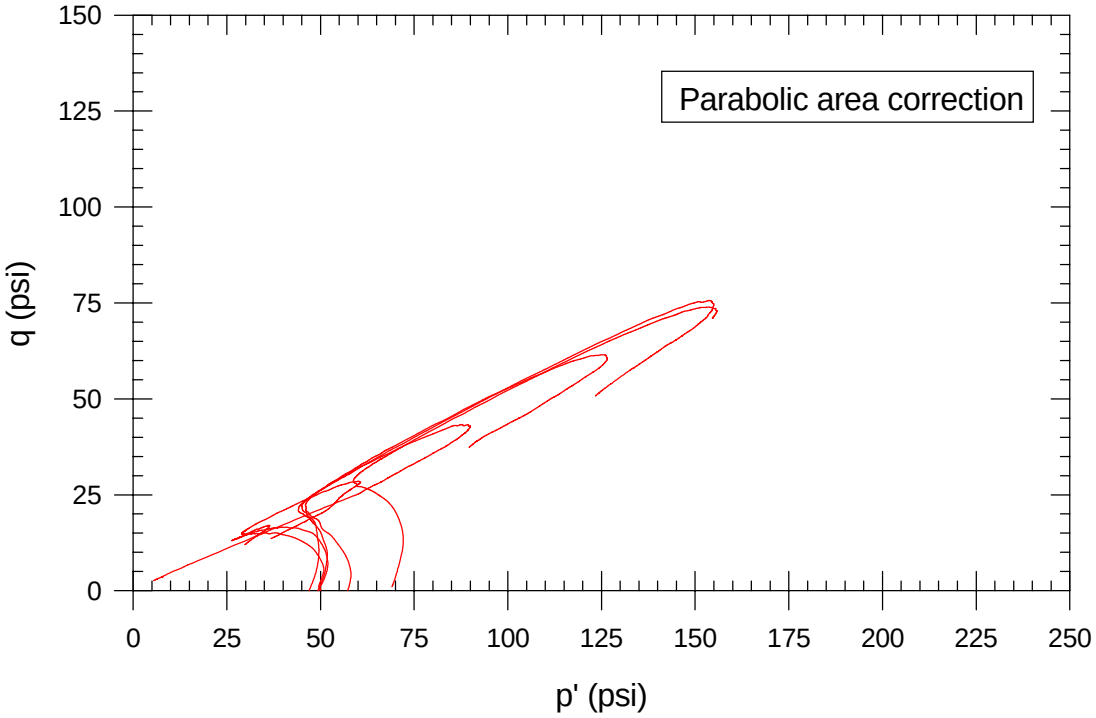
Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Monterey Sand
Conventional Ends

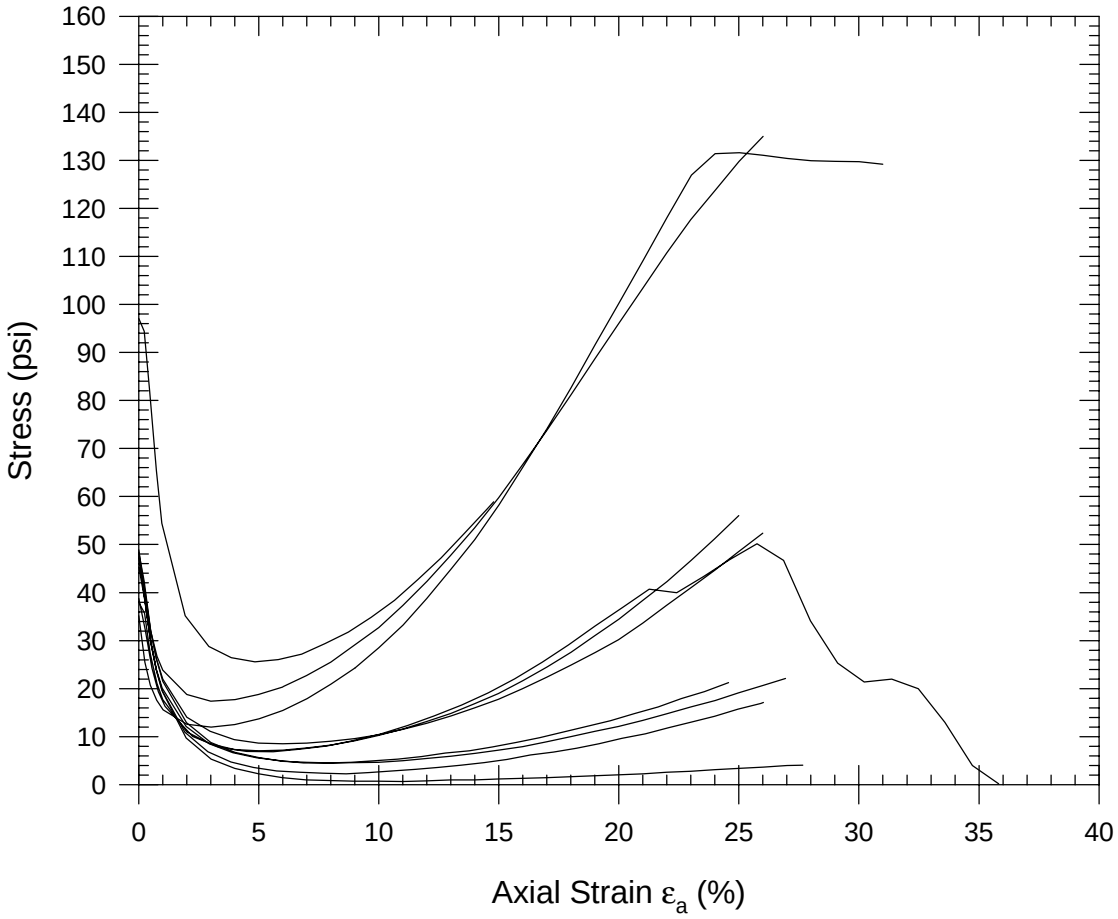
Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.737	57
0.772	47
0.776	49
0.780	68
0.790	50
0.827	50

Ottawa Sand - Conventional End Platens

Ottawa Sand
Conventional Ends
Minor Principal Effective Stress-Strain
σ_3'

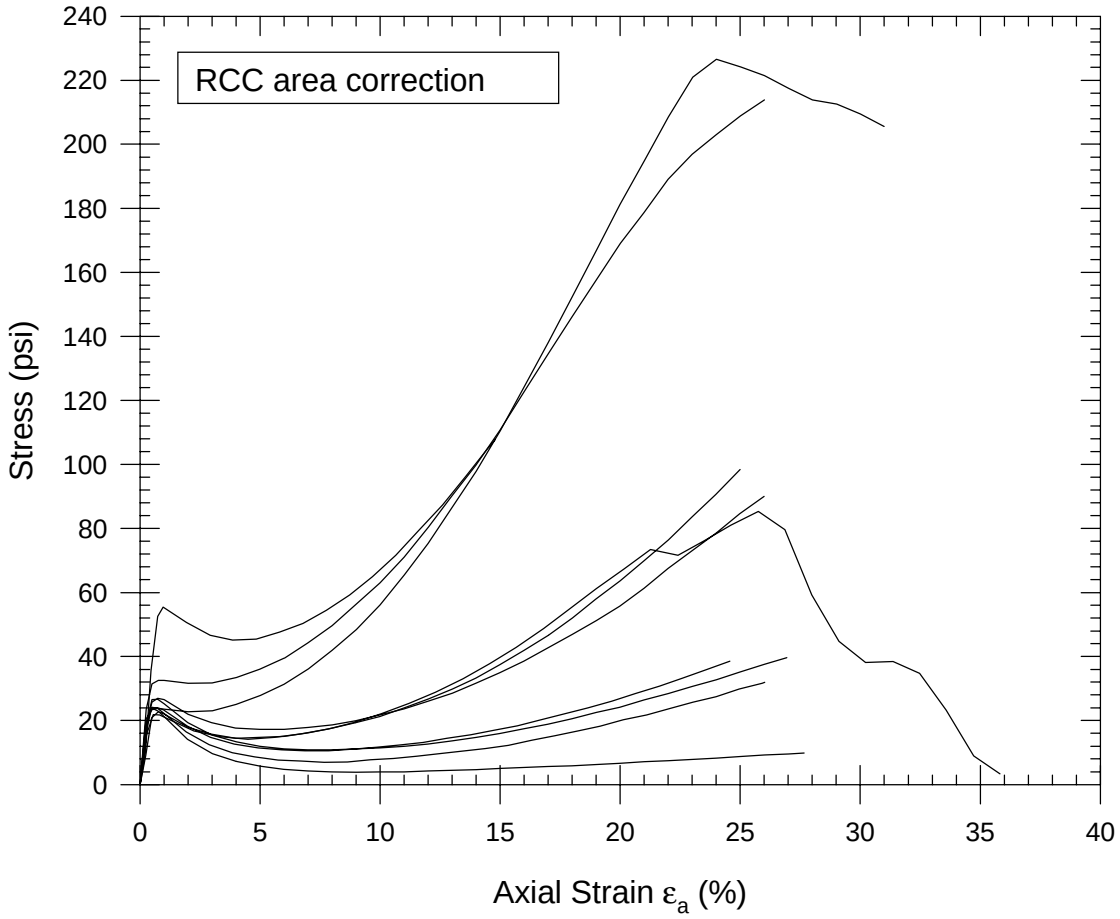


e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

Deviator Stress-Strain

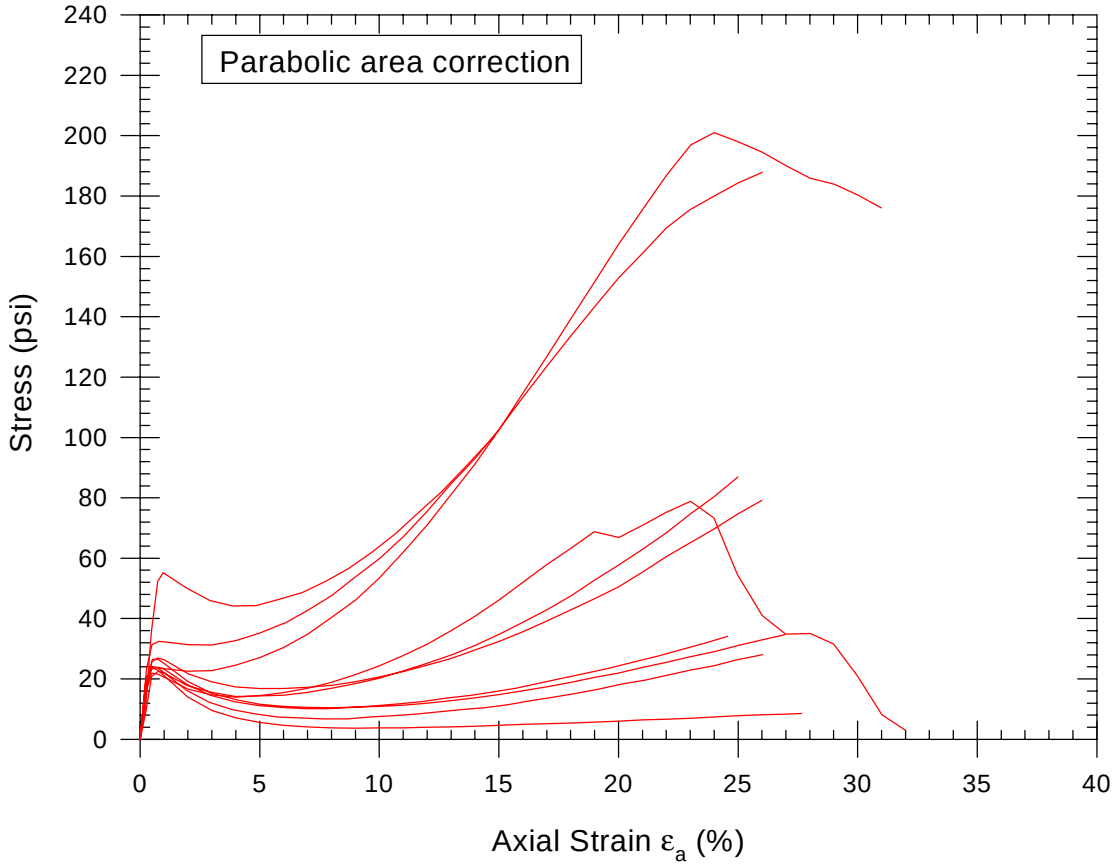
σ_1-σ_3



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

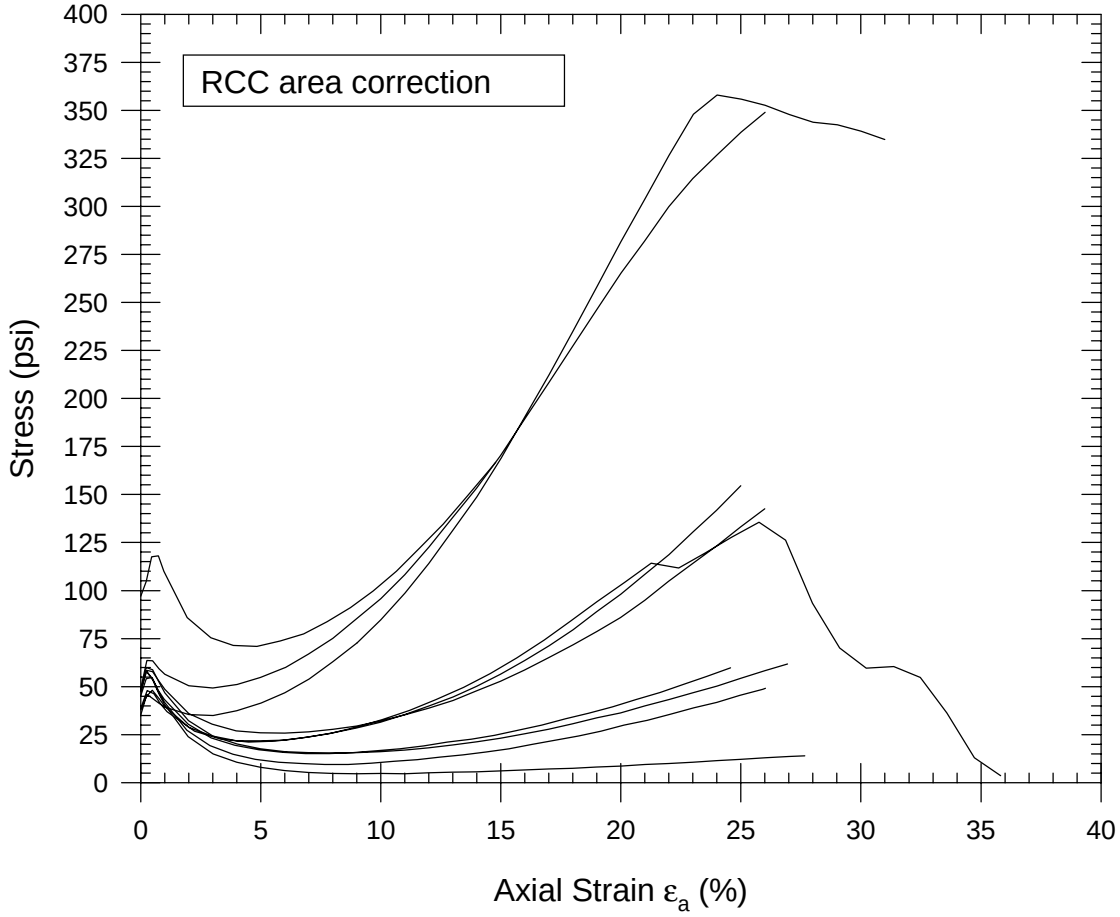
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_{3'con}$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

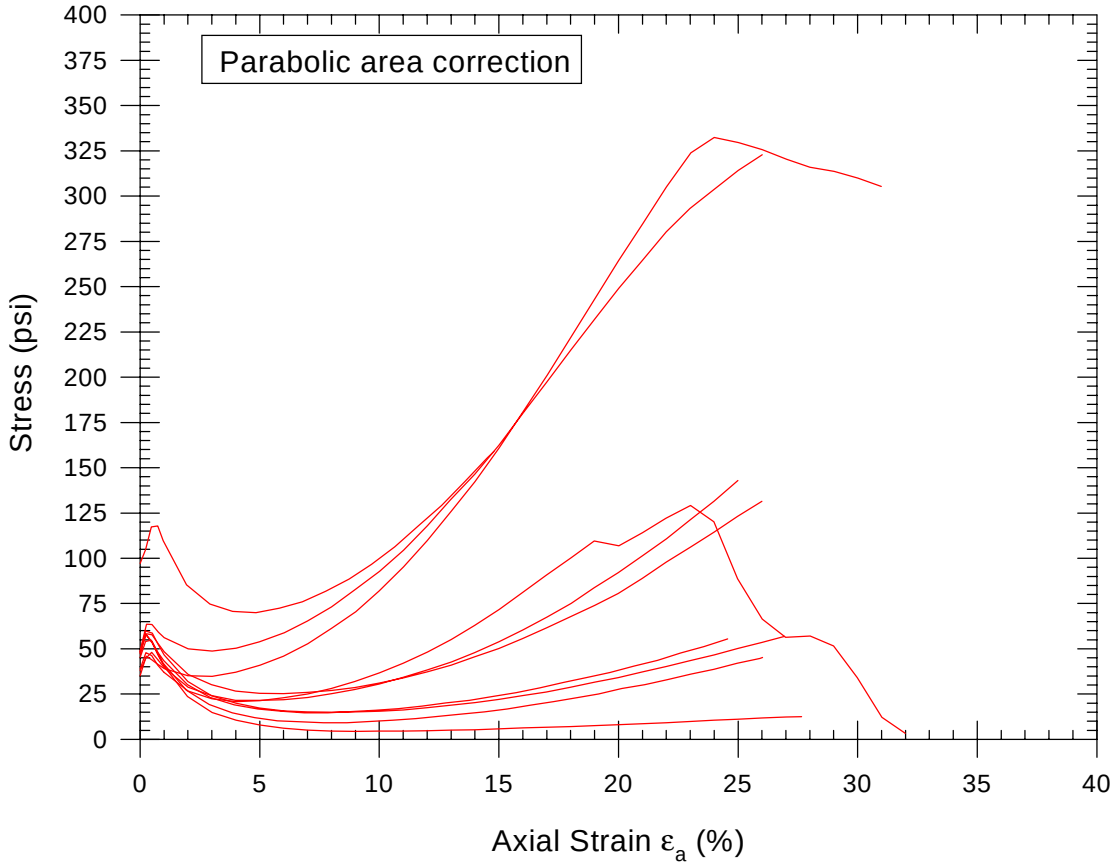
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

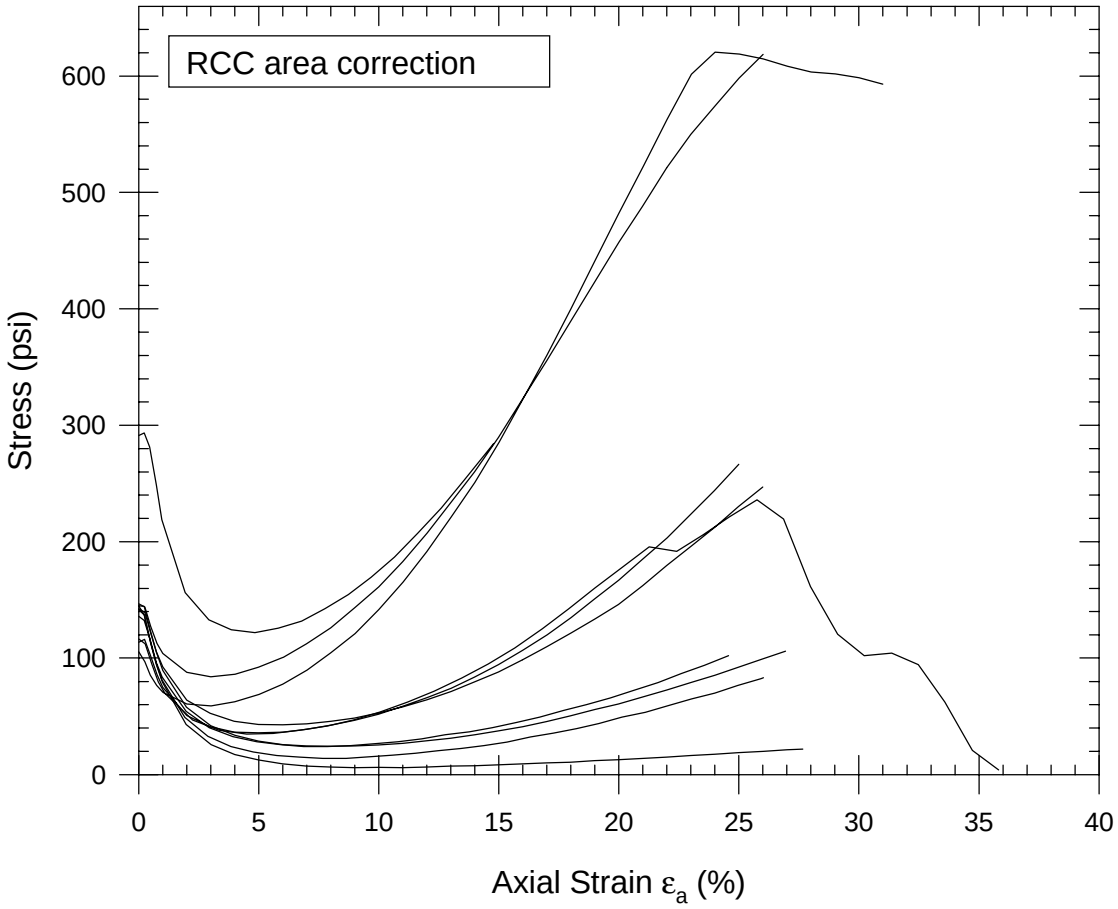
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

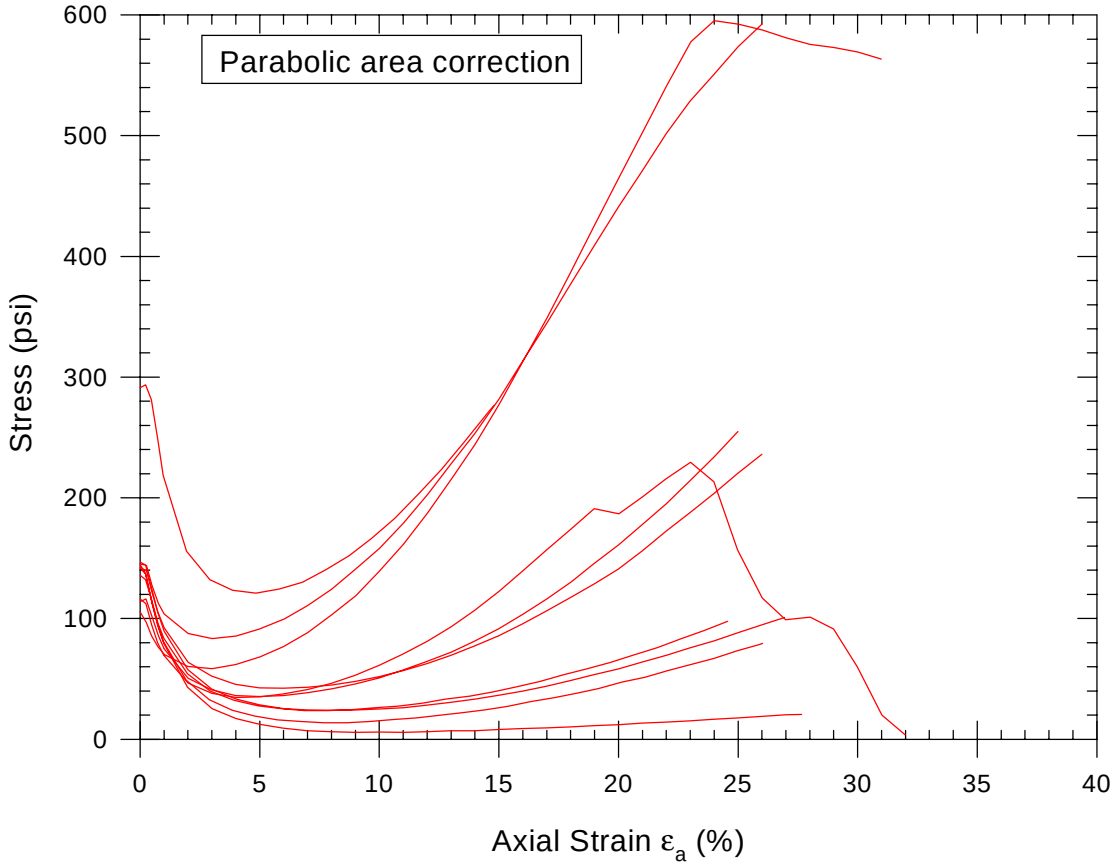
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

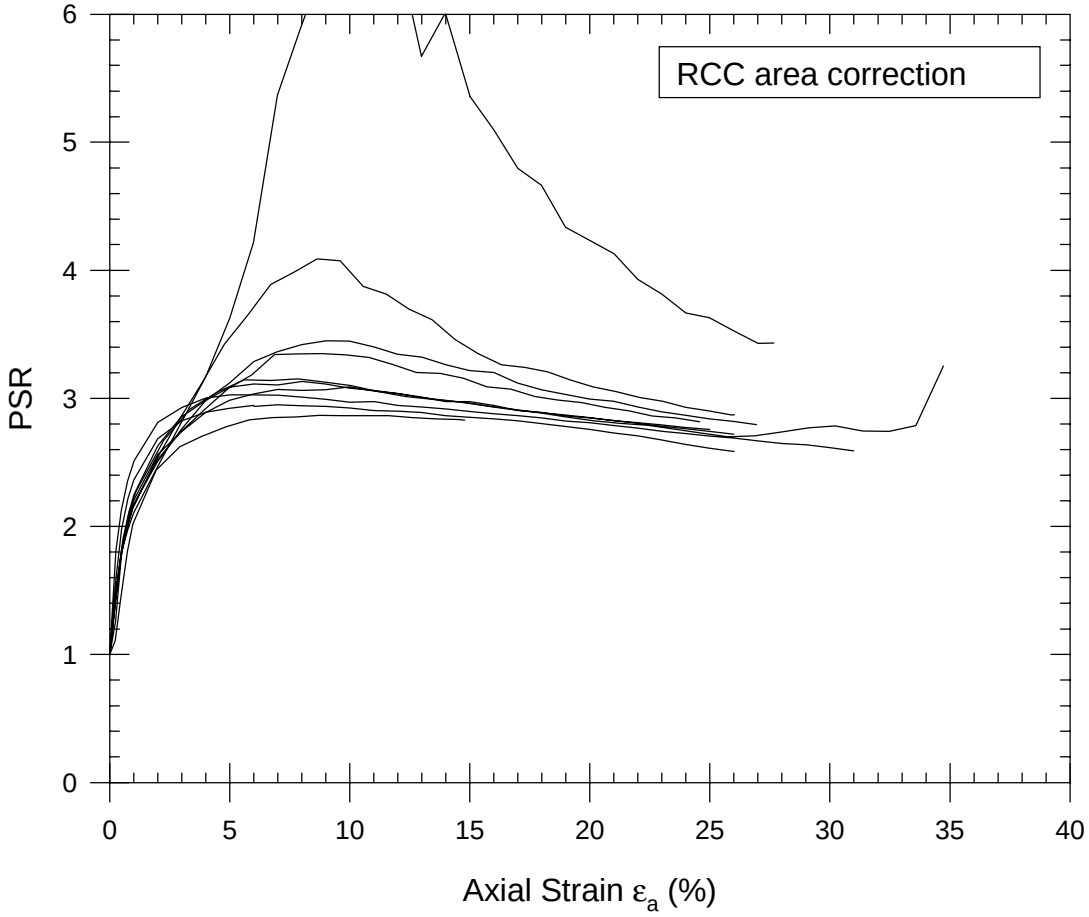
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

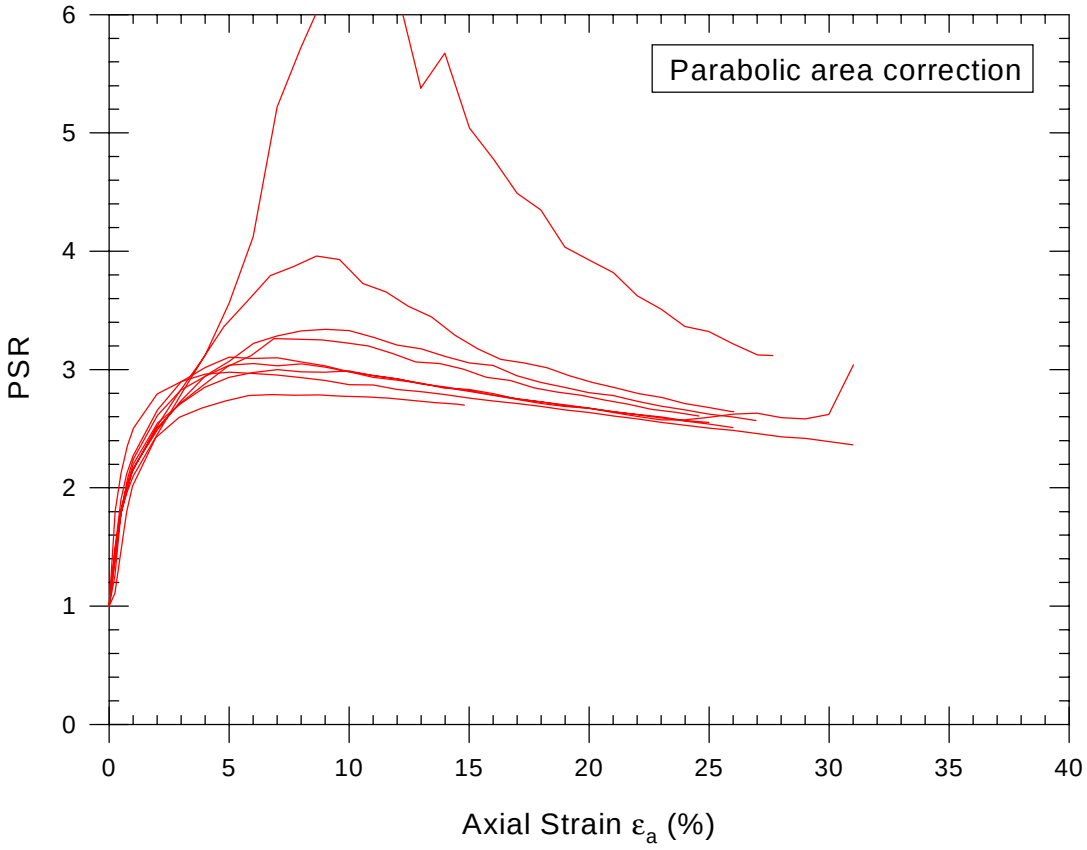
Principal Stress Ratio



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

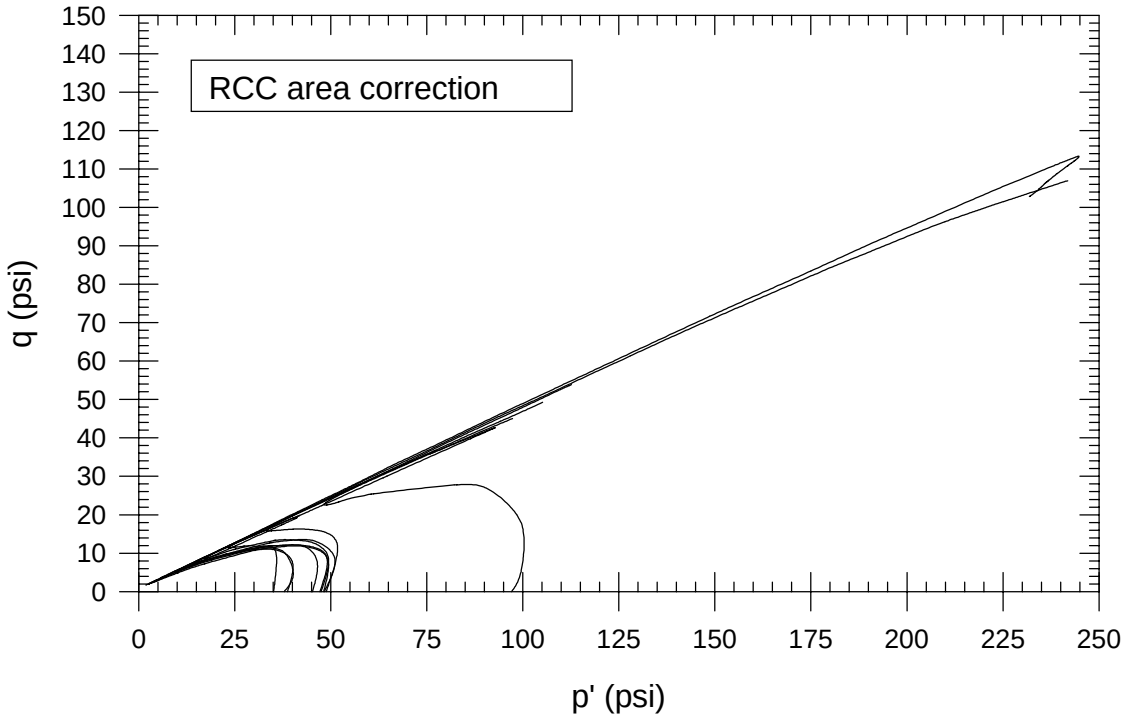
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

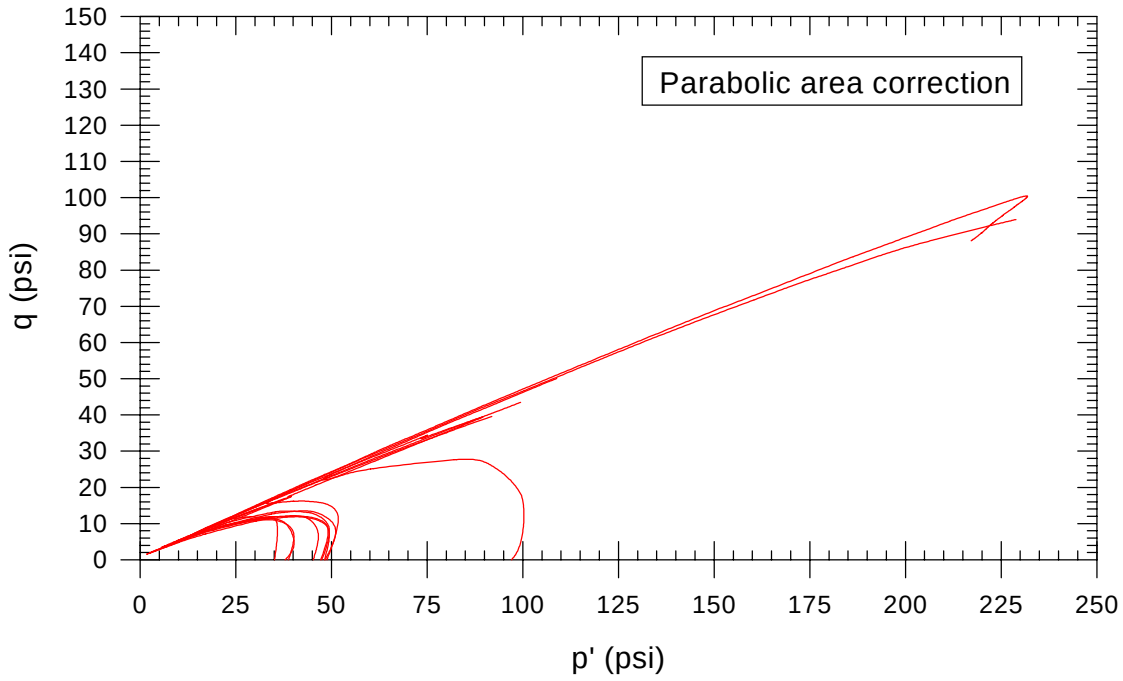
Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Ottawa Sand
Conventional Ends

Stress Paths

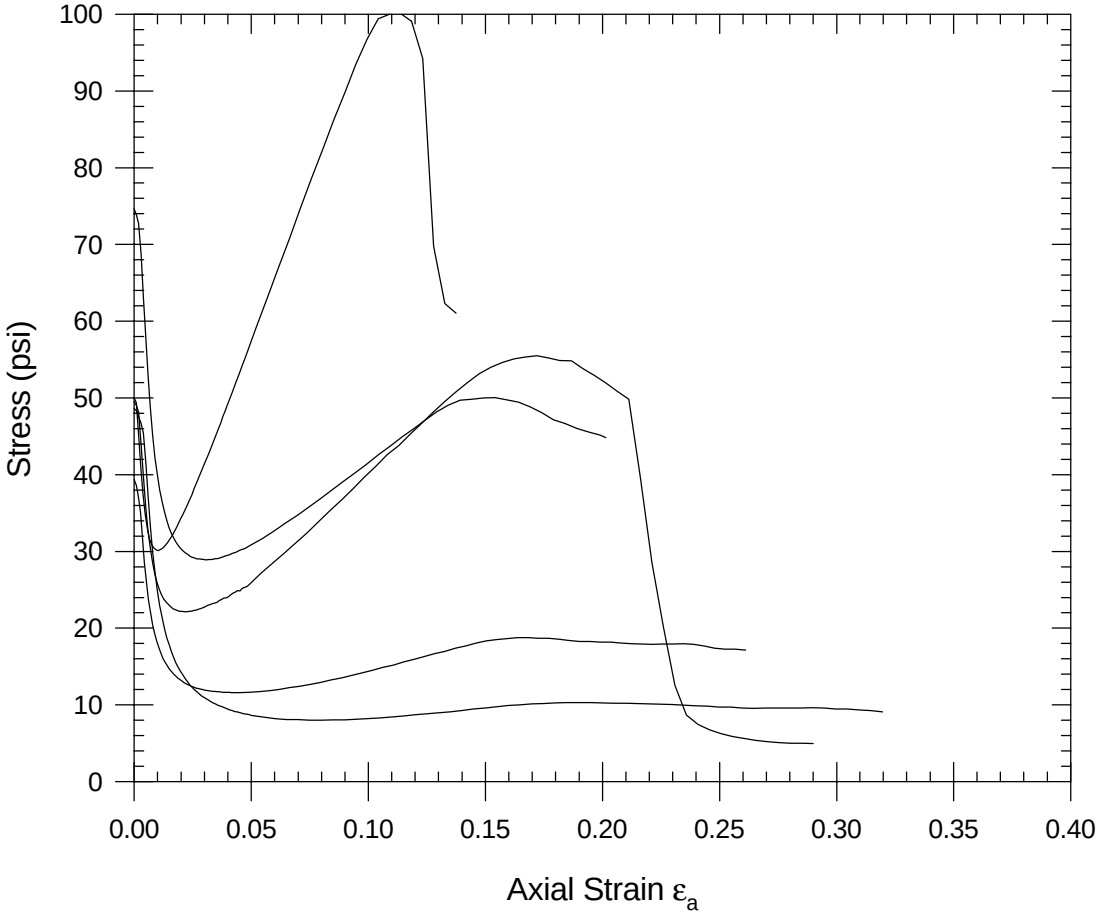


e	$\sigma_{3\,con}'$ (psi)
0.674	49
0.681	35
0.688	39
0.693	97
0.695	48
0.697	38
0.704	47
0.705	45
0.711	48
0.729	48

Light Castle Sand - Lubricated End Platens

Light Castle Sand
Lubricated Ends

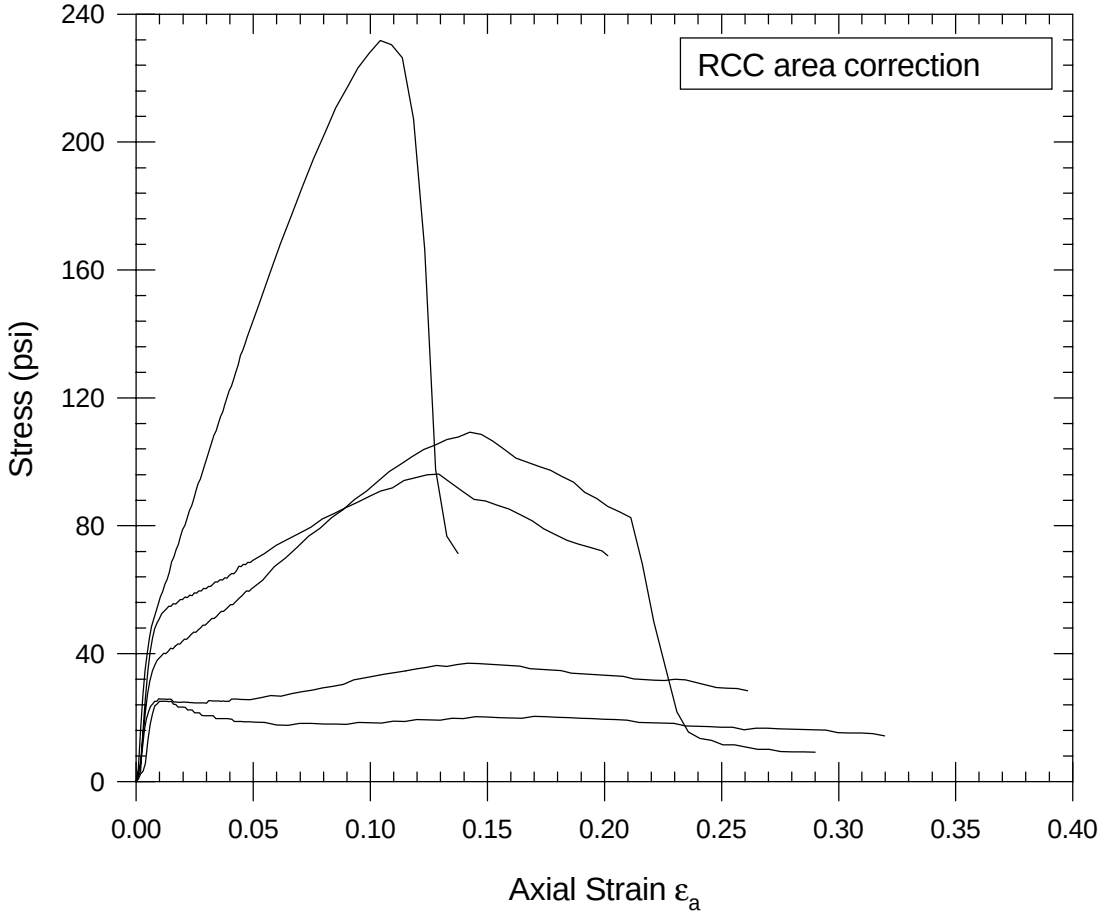
Minor Principal Effective Stress-Strain
σ_3'



e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

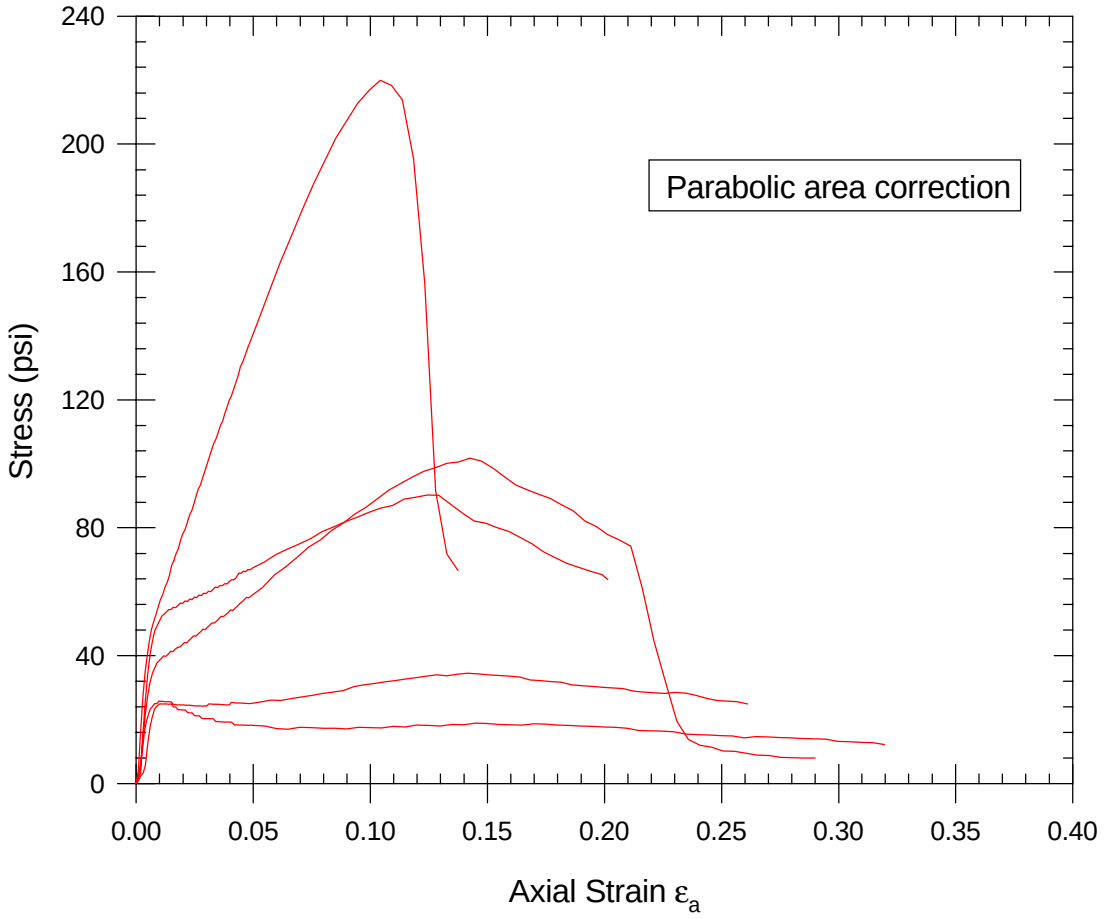
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_3'_{con}$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

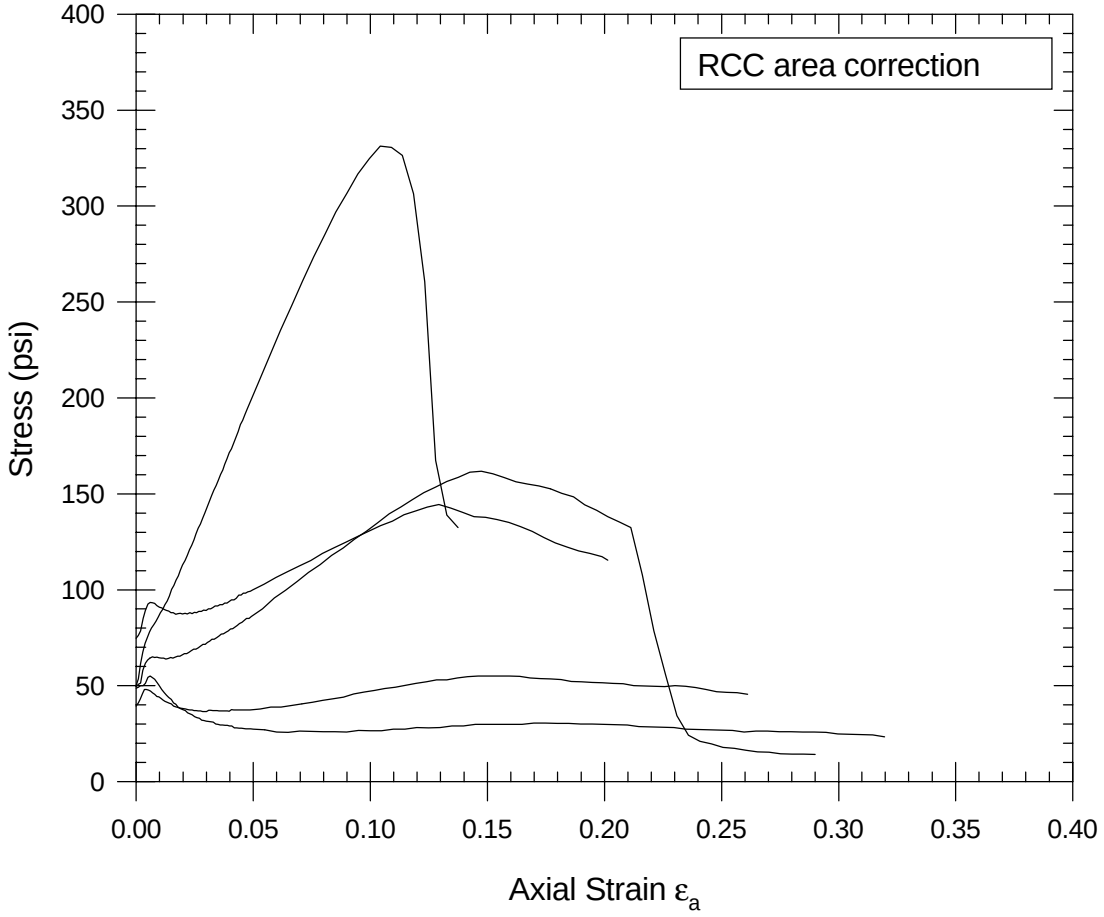
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_3'_{con}$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

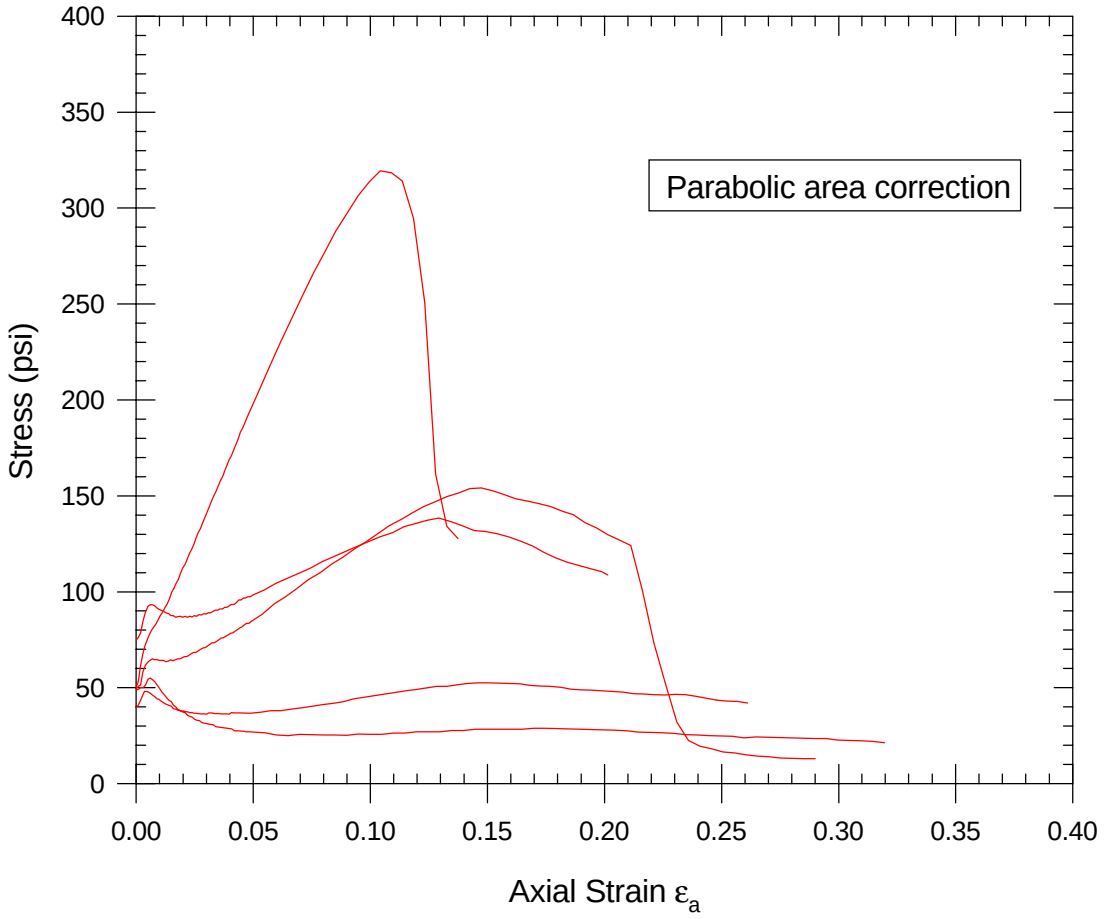
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

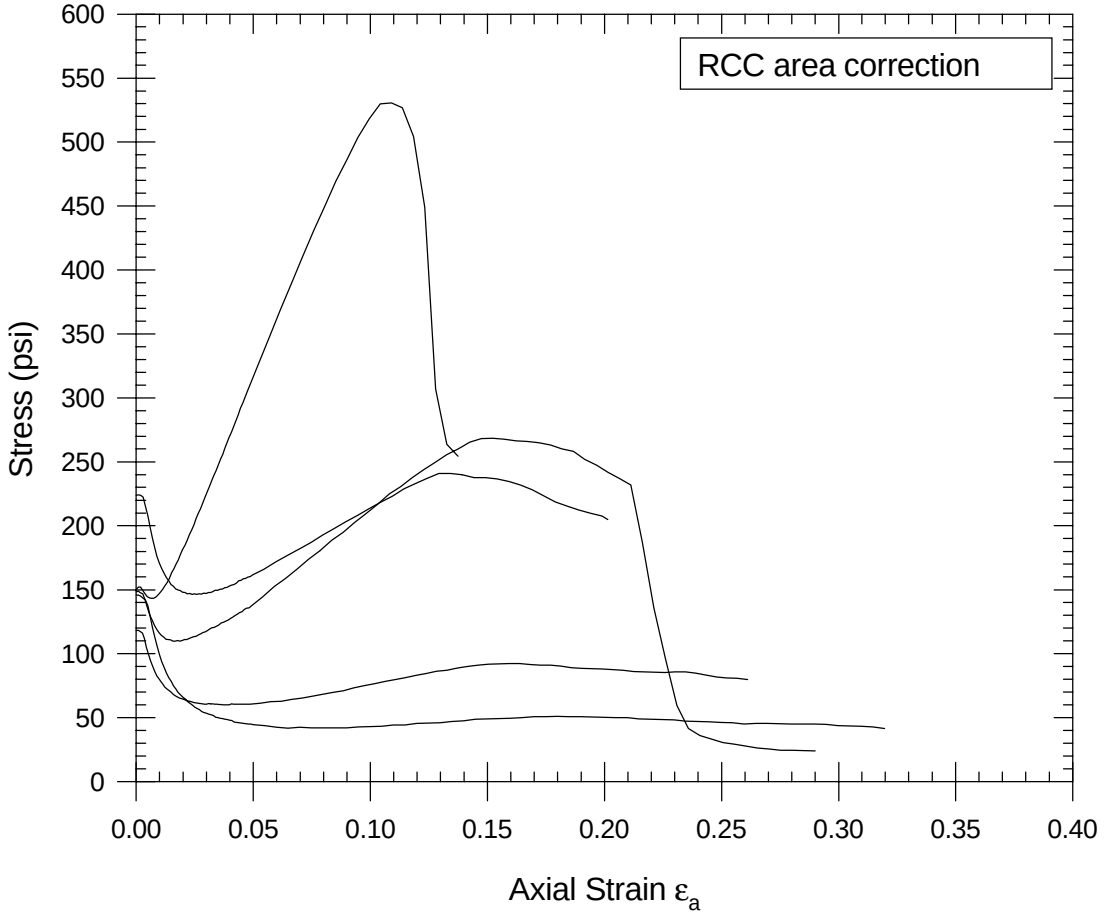
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

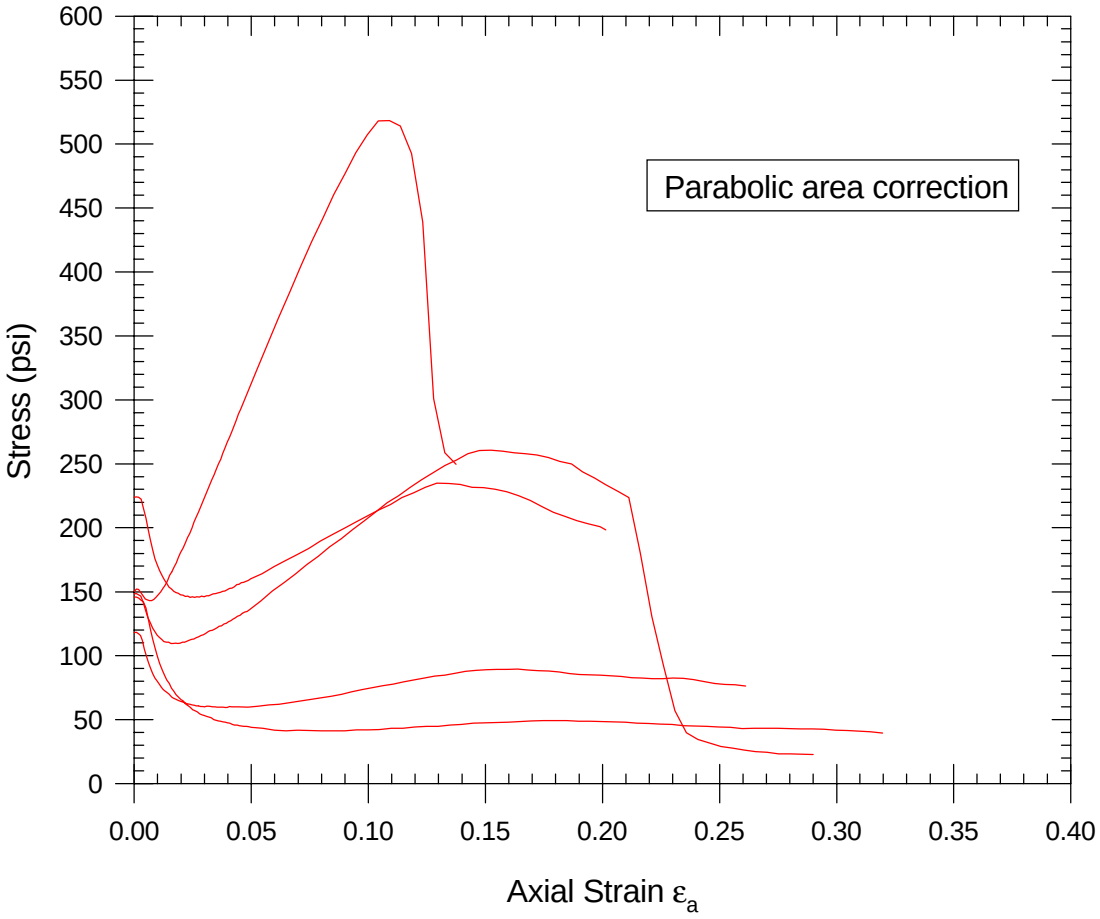
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

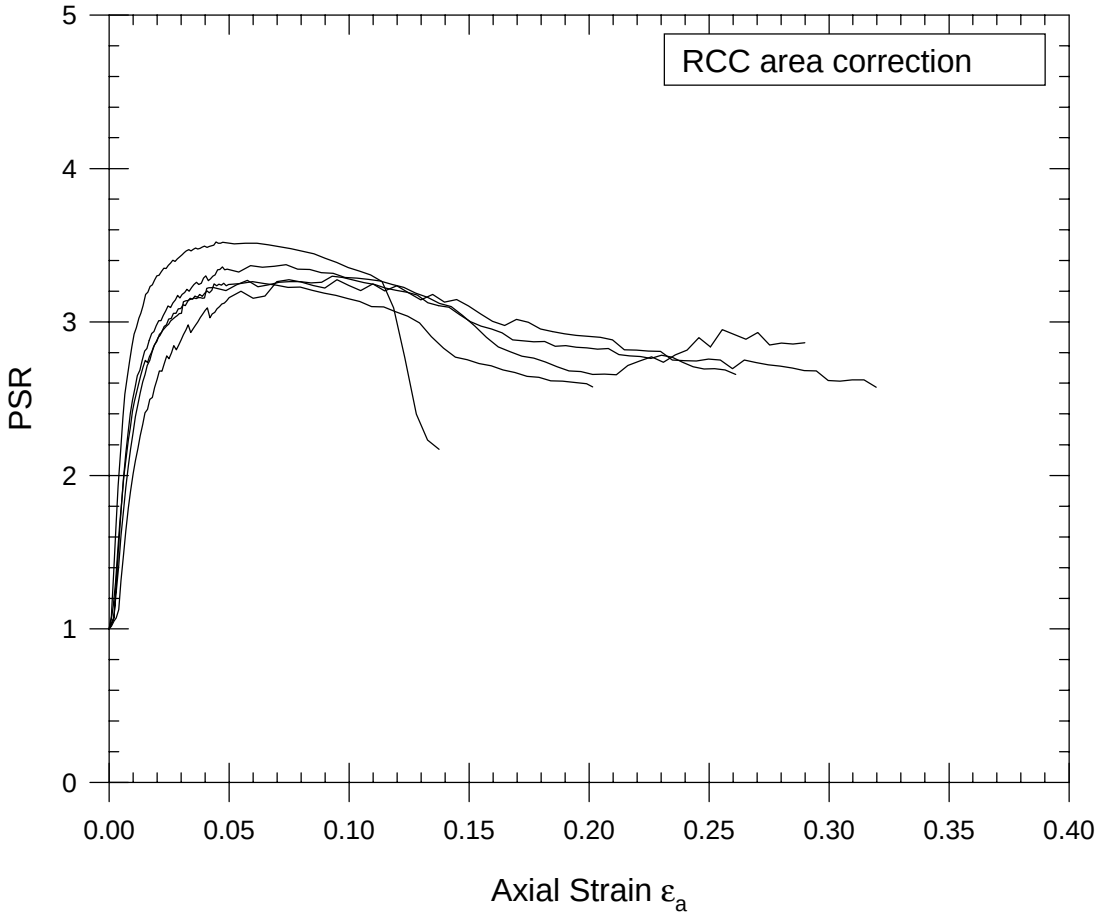
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

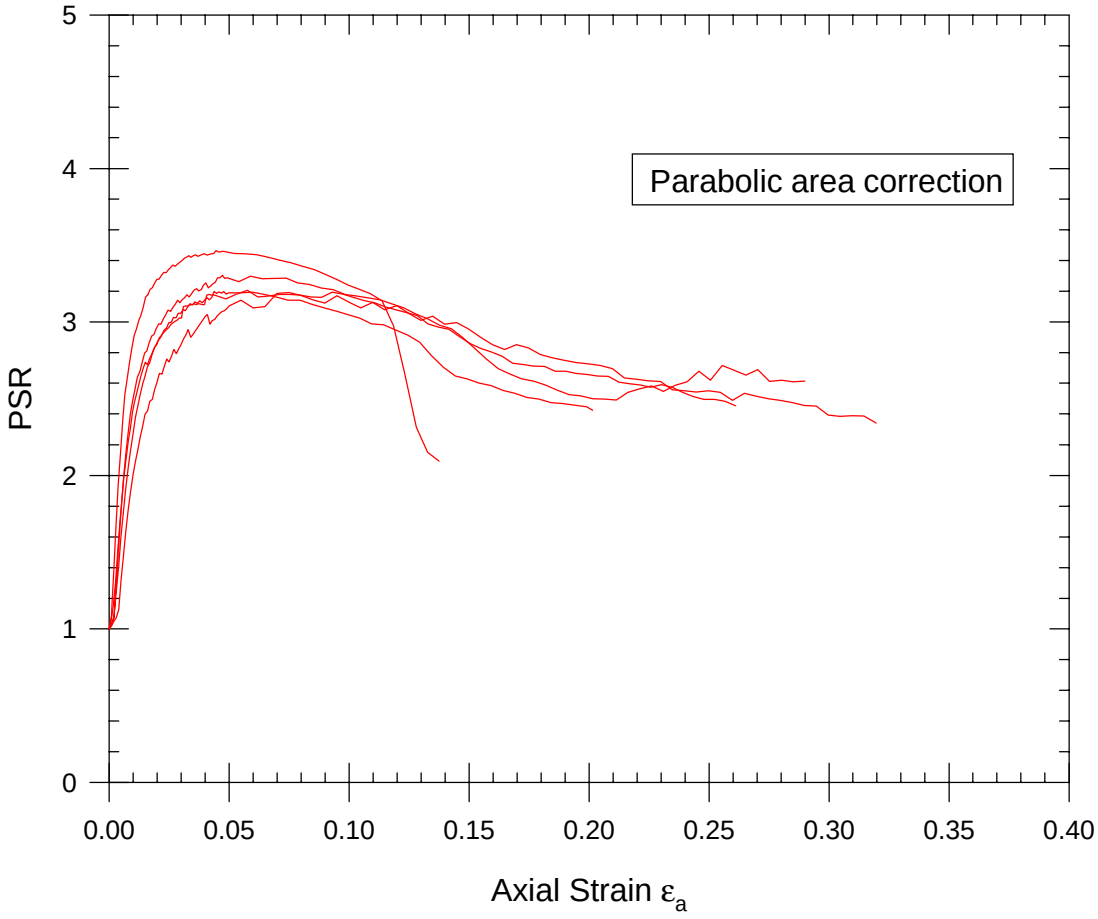
Principal Stress Ratio



e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

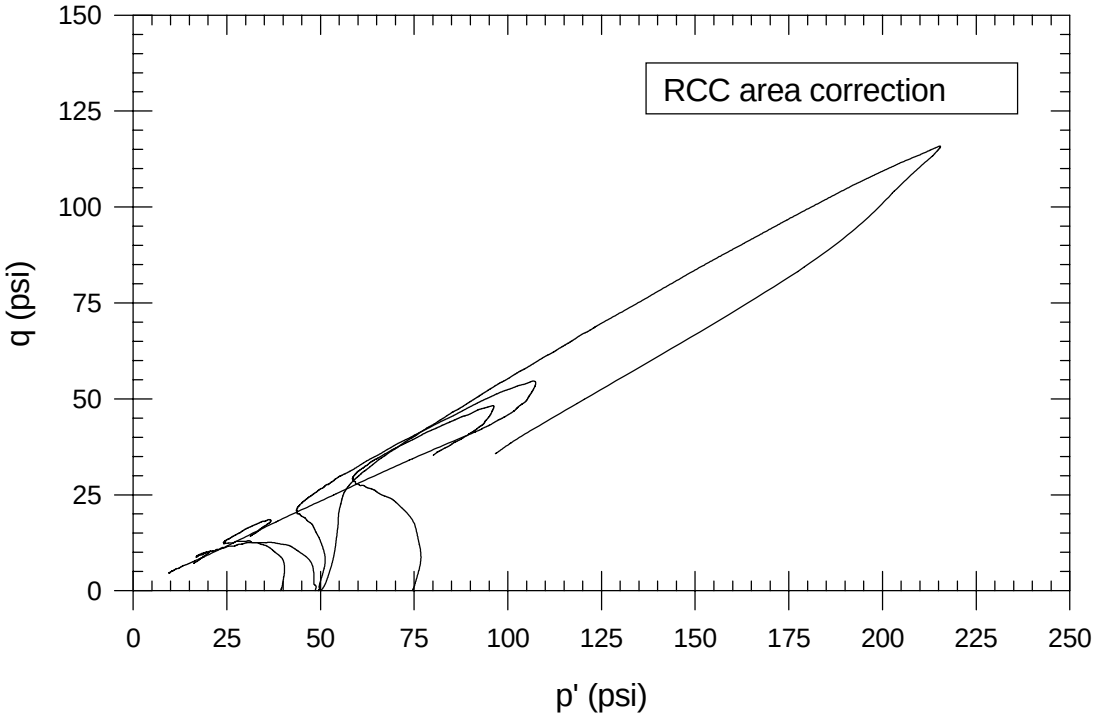
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

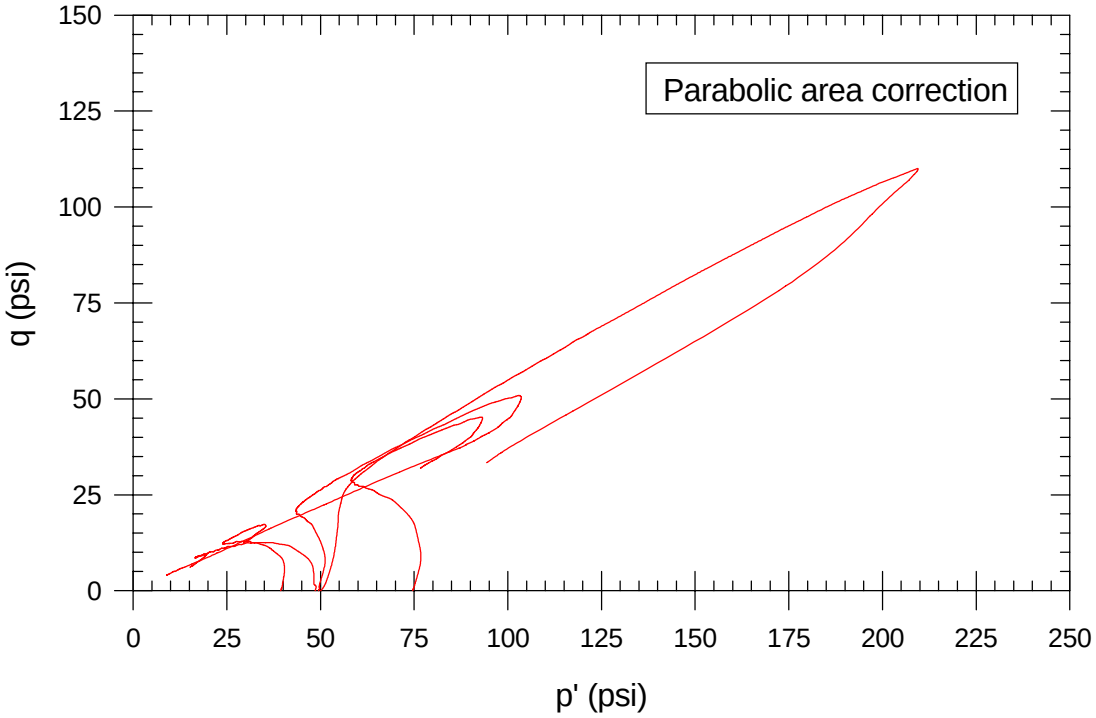
Stress Paths



e	$\sigma_3'_{con}$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Light Castle Sand
Lubricated Ends

Stress Paths

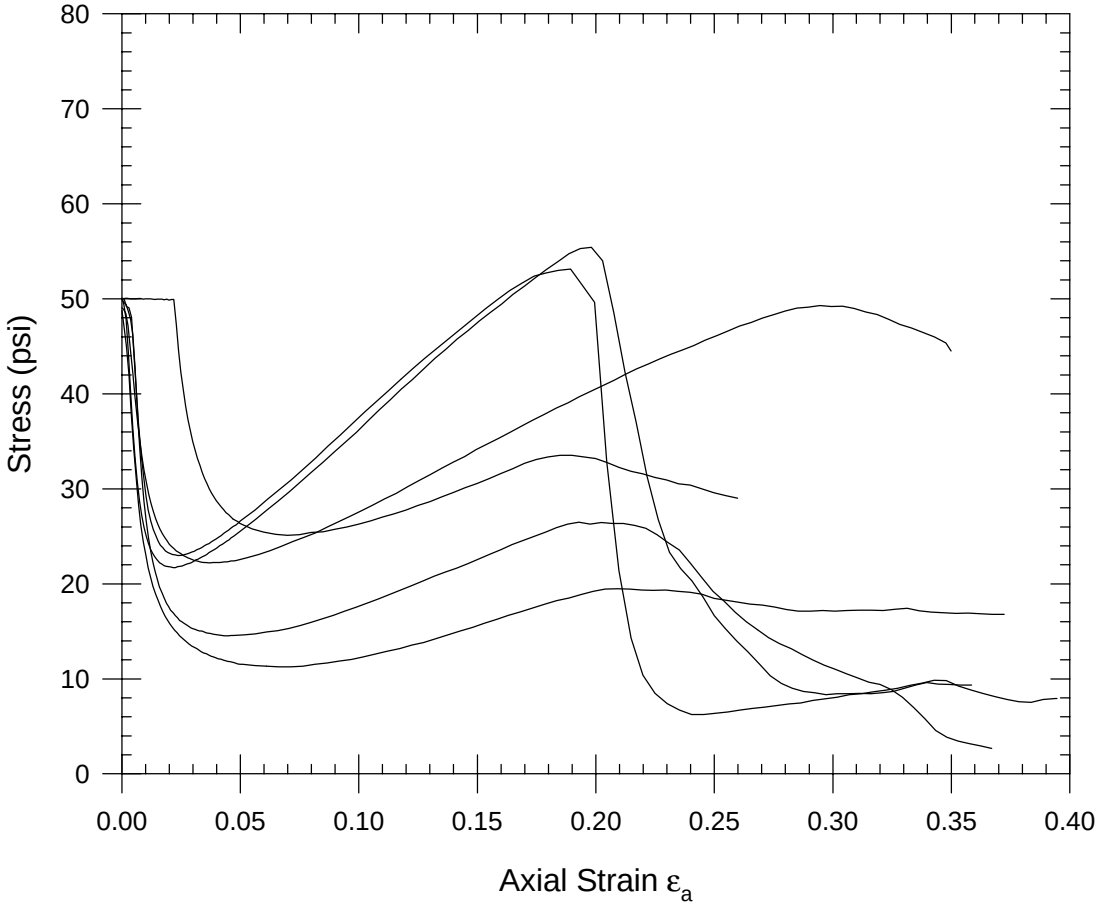


e	$\sigma_{3\,con}'$ (psi)
0.700	50
0.738	50
0.769	75
0.785	39
0.805	49

Monterey Sand - Lubricated End Platens

Monterey Sand
Lubricated Ends

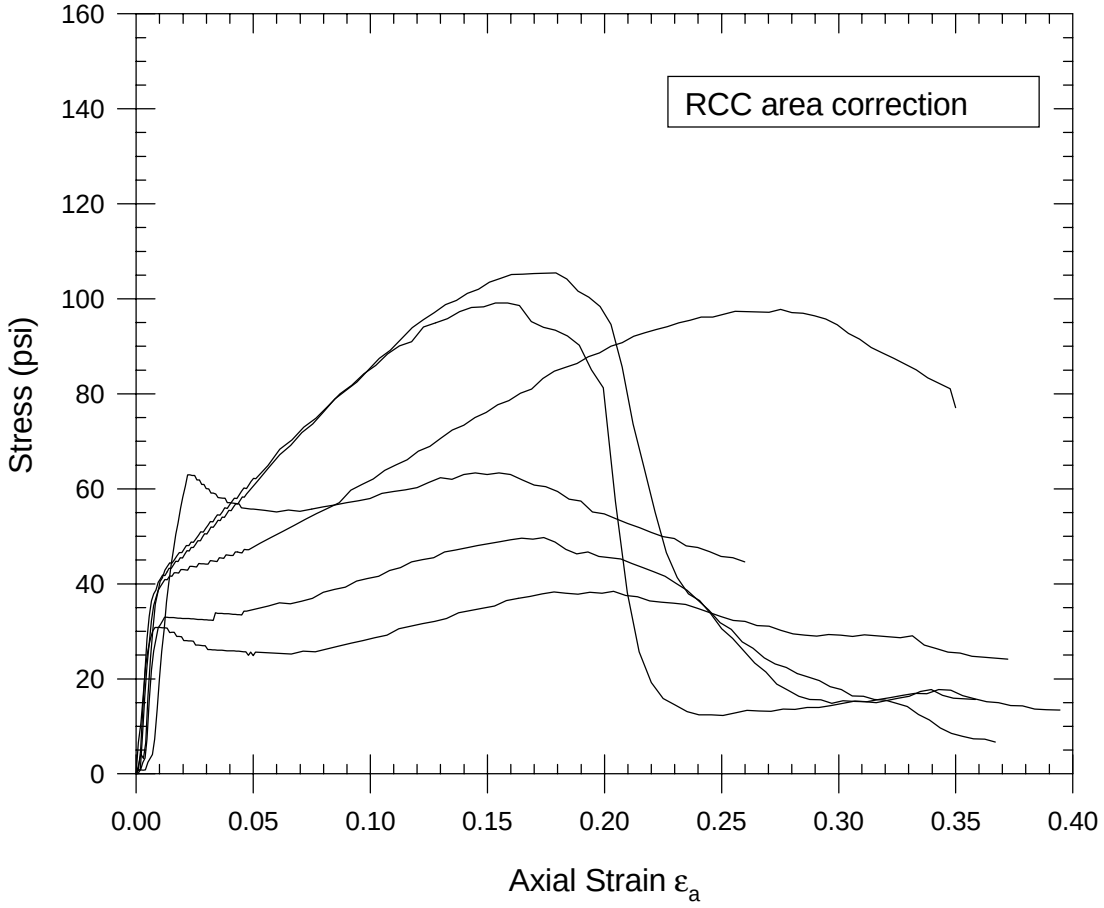
Minor Principal Effective Stress-Strain
σ_3'



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

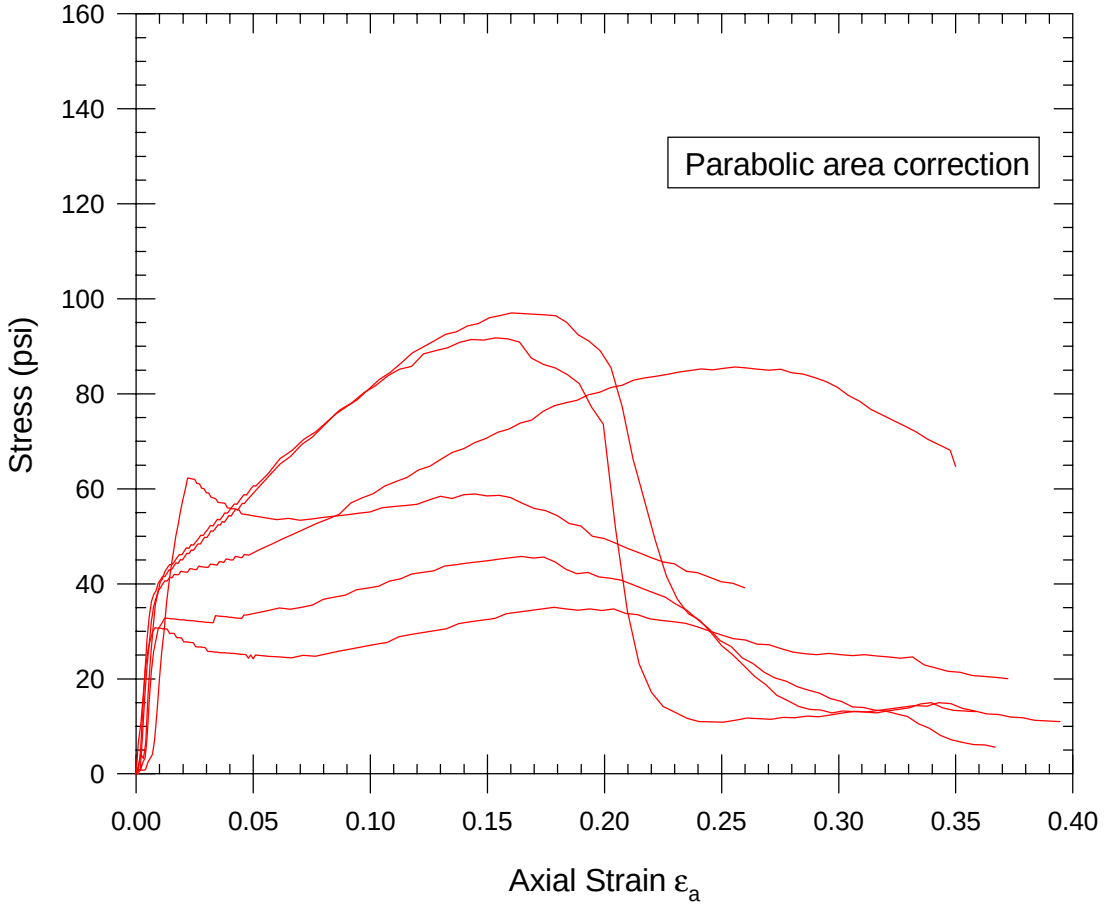
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

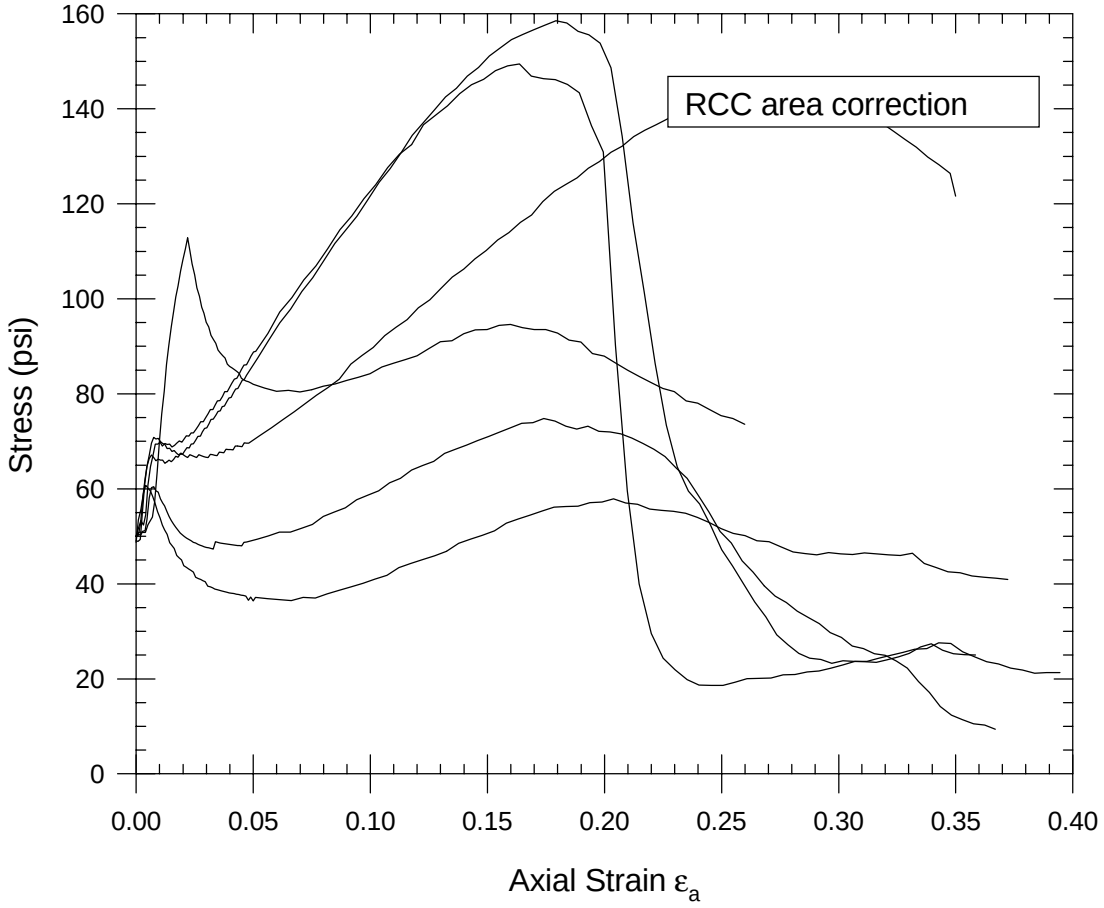
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_3'_{con}$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

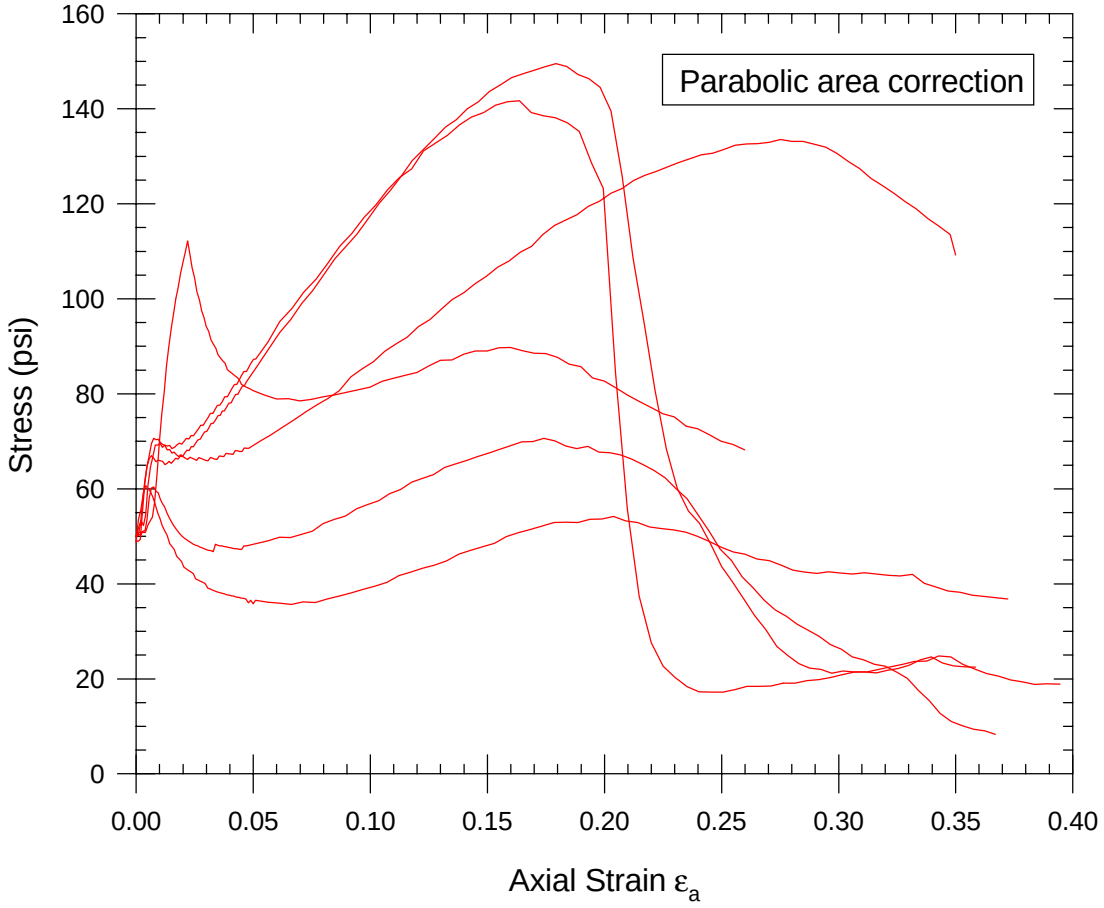
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

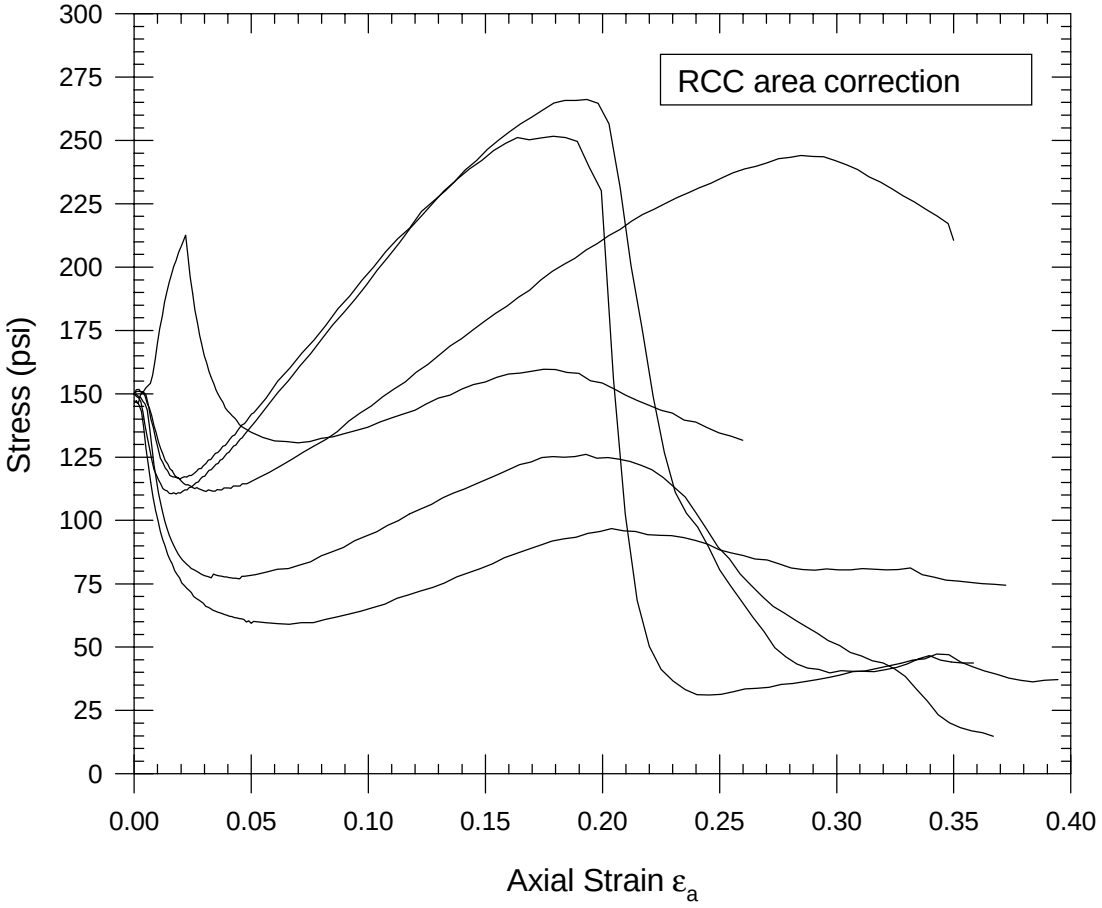
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

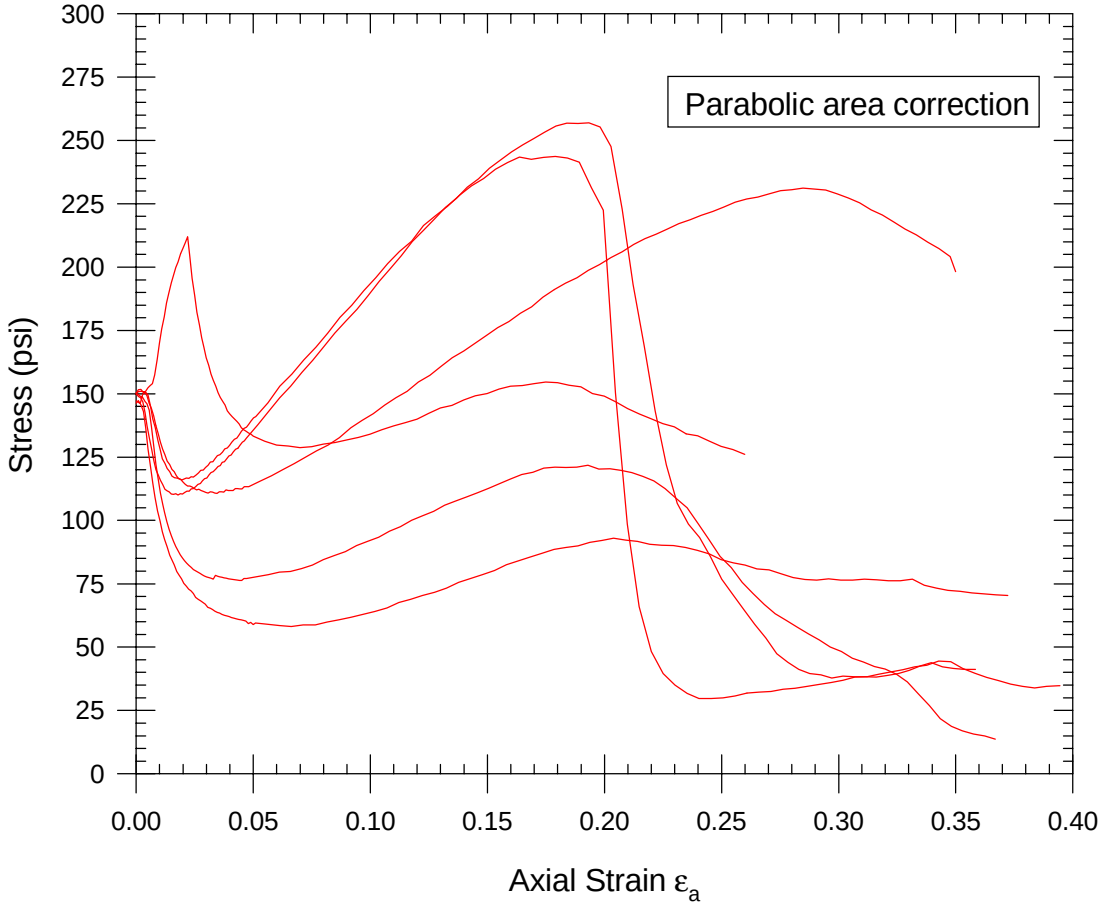
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

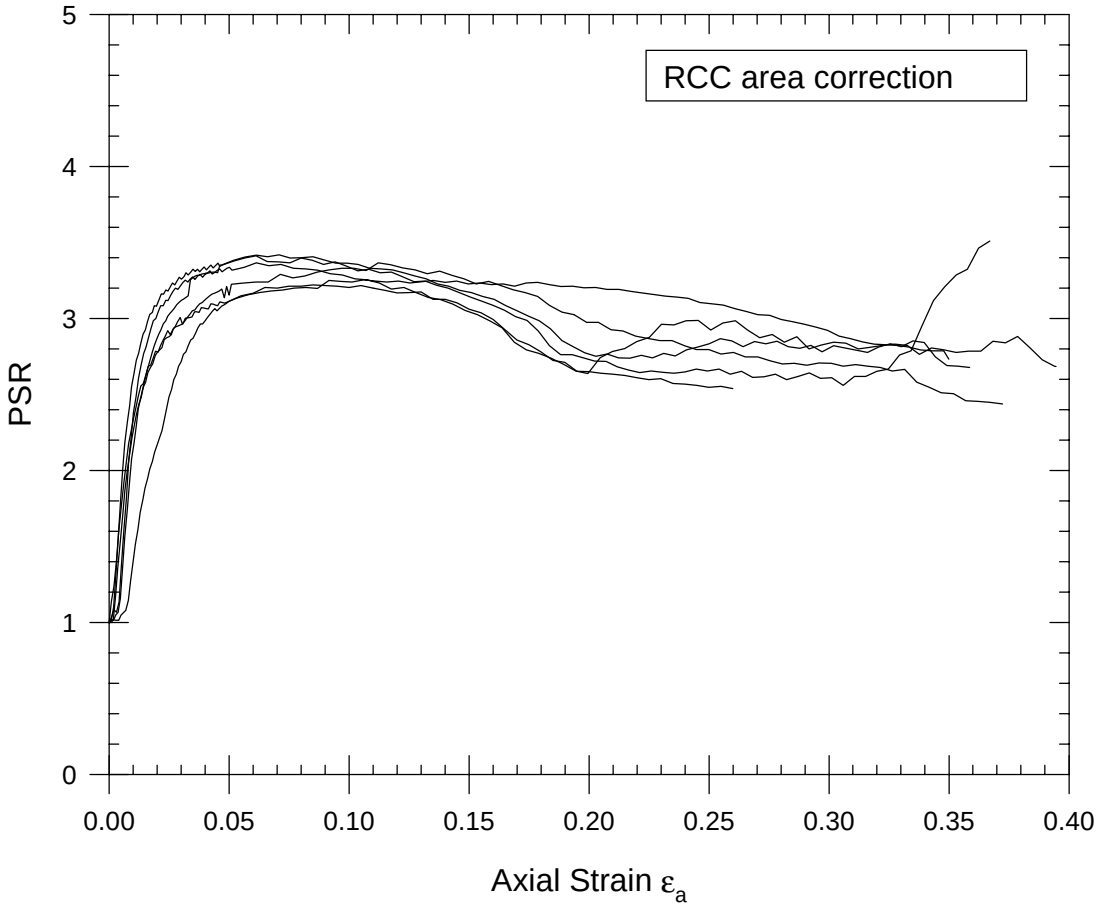
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

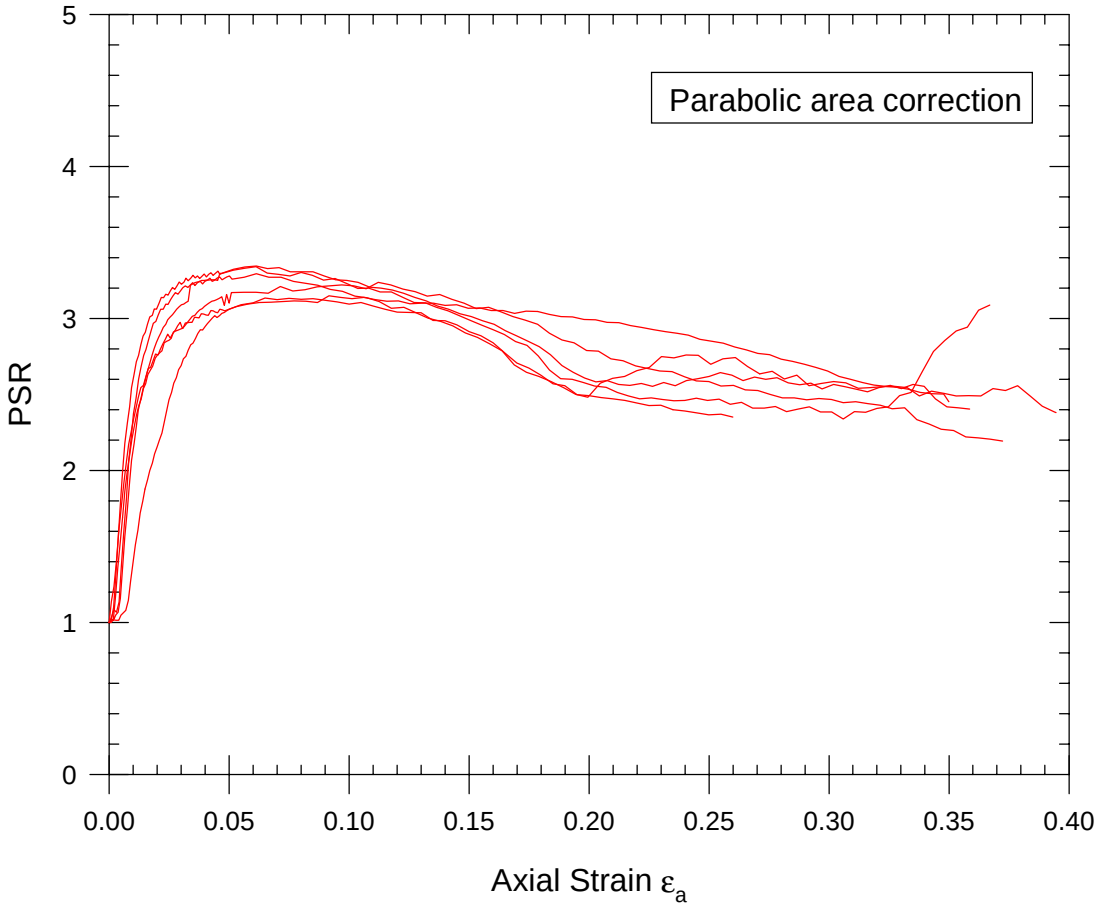
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

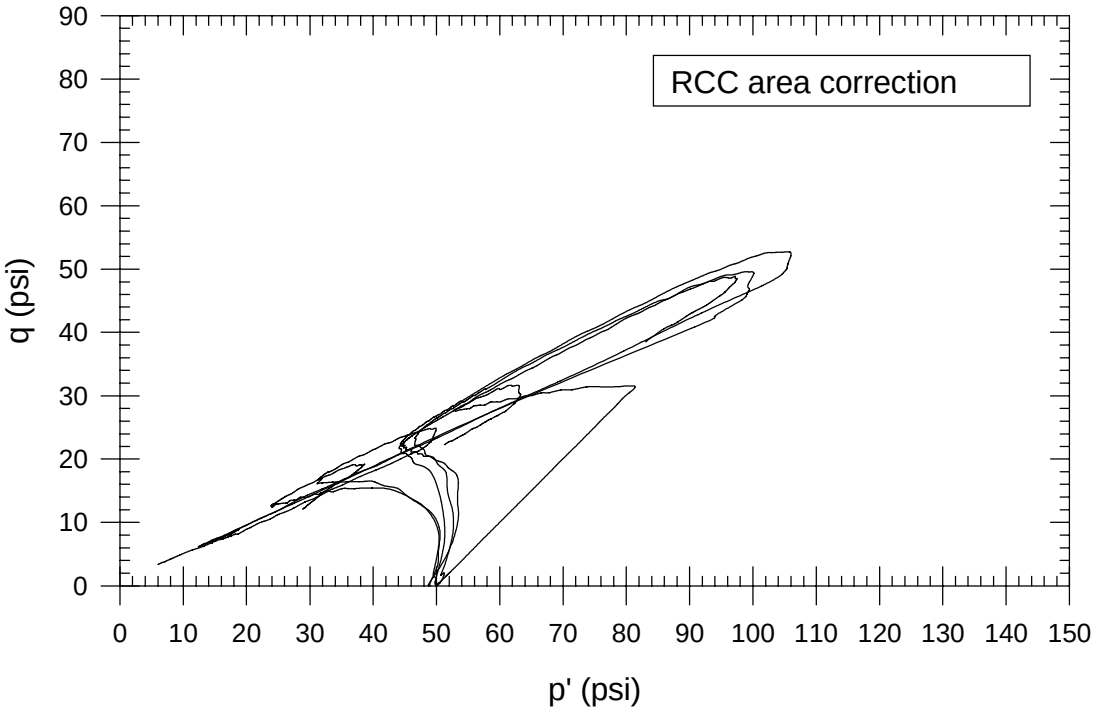
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

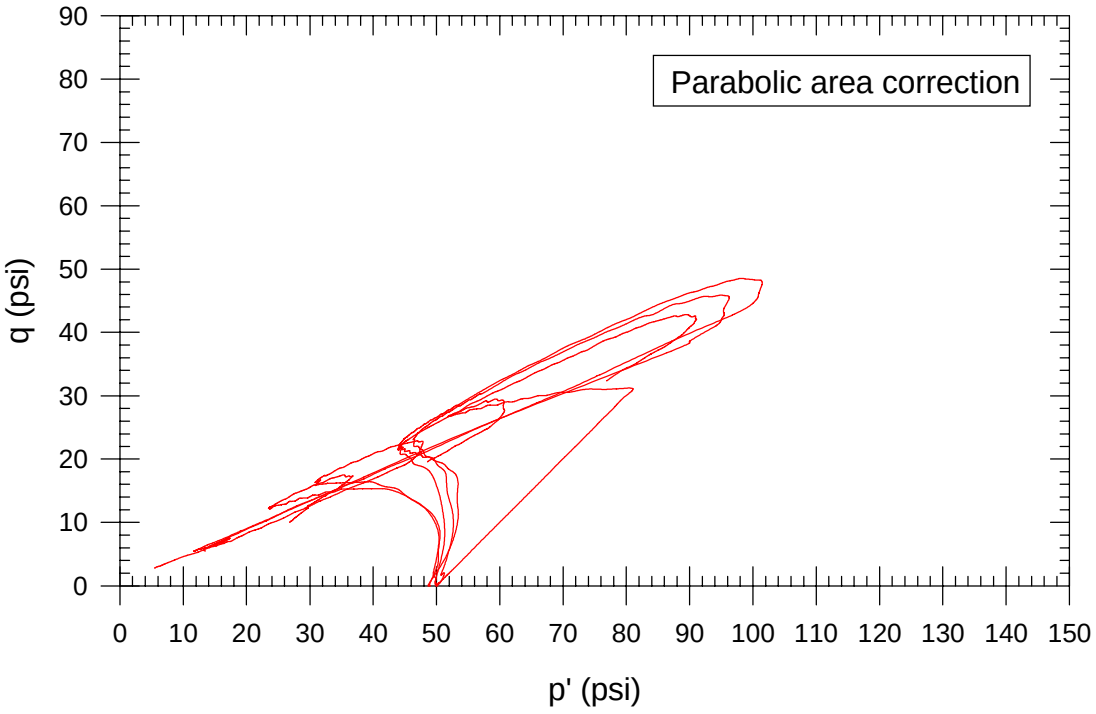
Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Monterey Sand
Lubricated Ends

Stress Paths

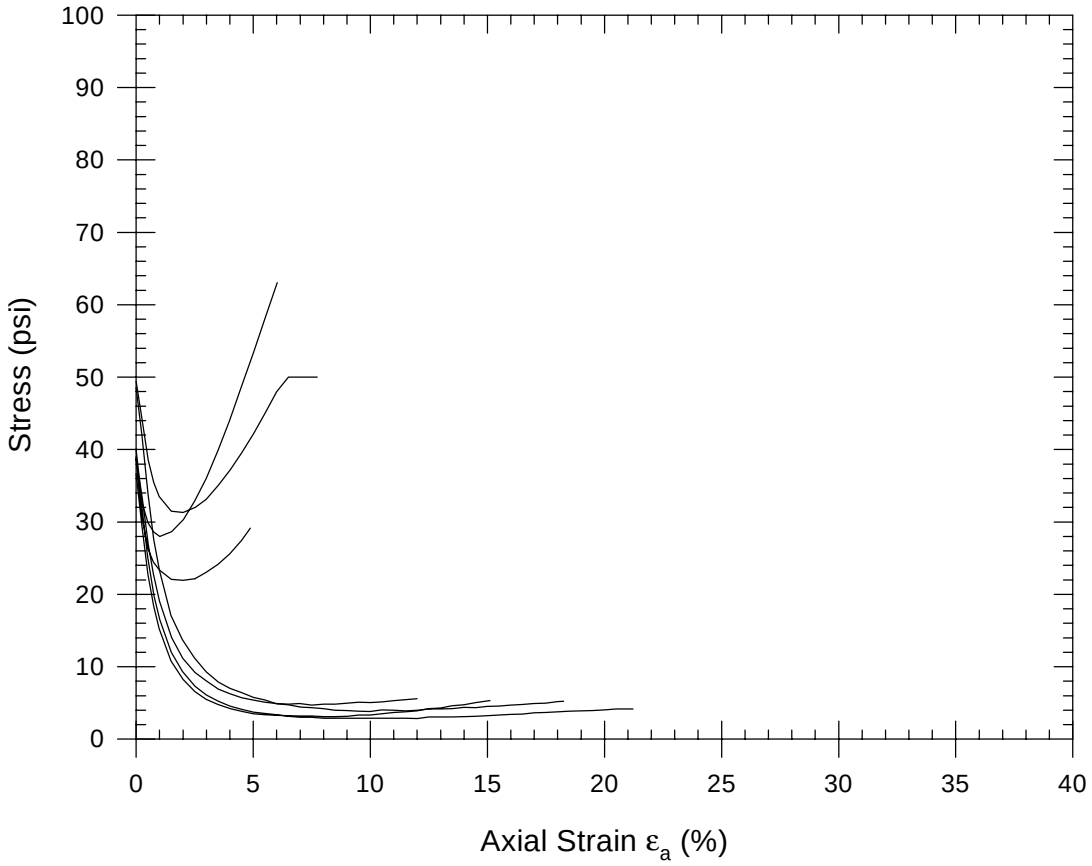


e	$\sigma_{3\,con}'$ (psi)
0.771	50
0.781	50
0.793	49
0.808	50
0.810	50
0.813	49

Ottawa Sand - Lubricated End Platens

Ottawa Sand
Lubricated Ends

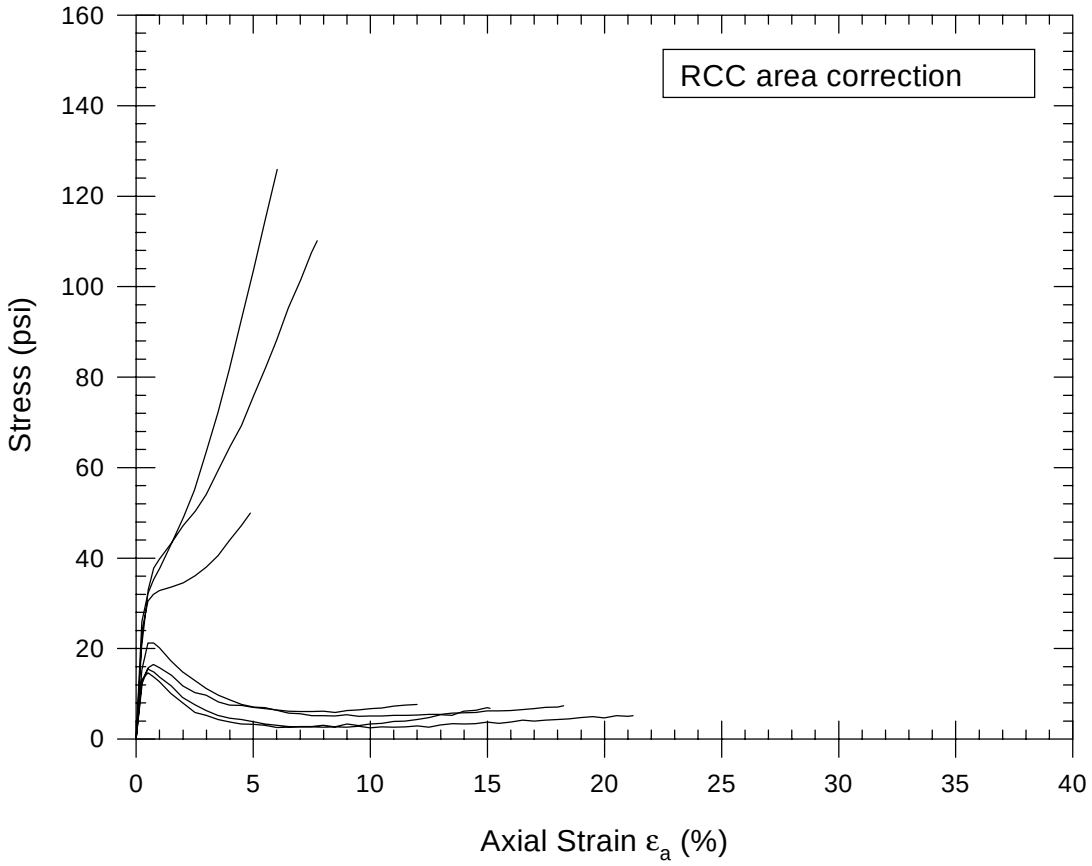
Minor Principal Effective Stress-Strain
σ_3'



e	$\sigma_{3'con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

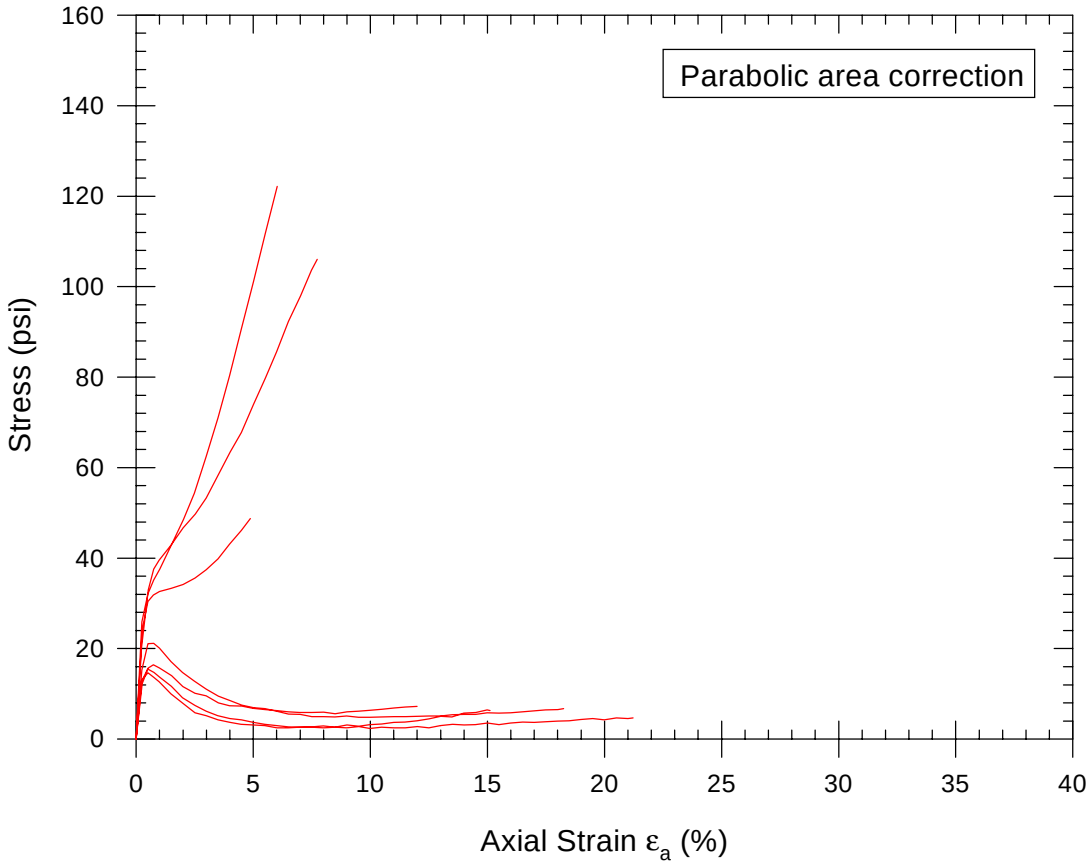
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_{3'con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

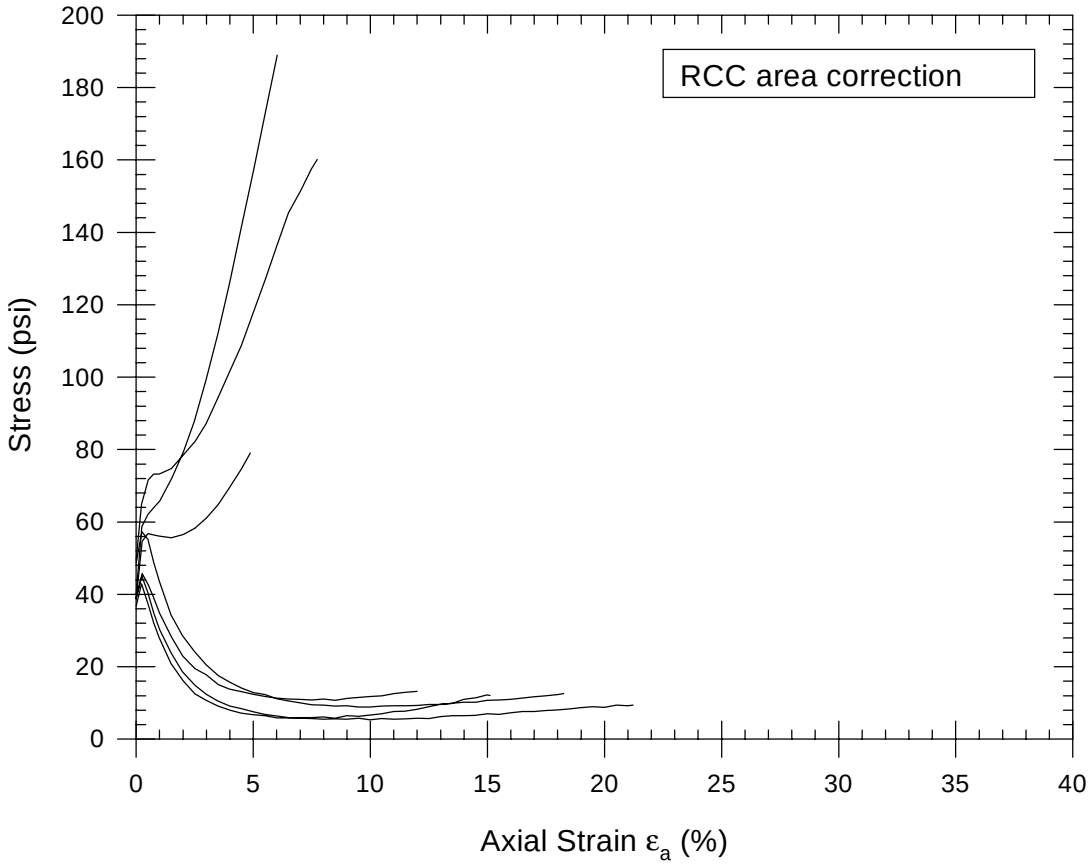
Deviator Stress-Strain
σ_1-σ_3



e	$\sigma_{3'con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

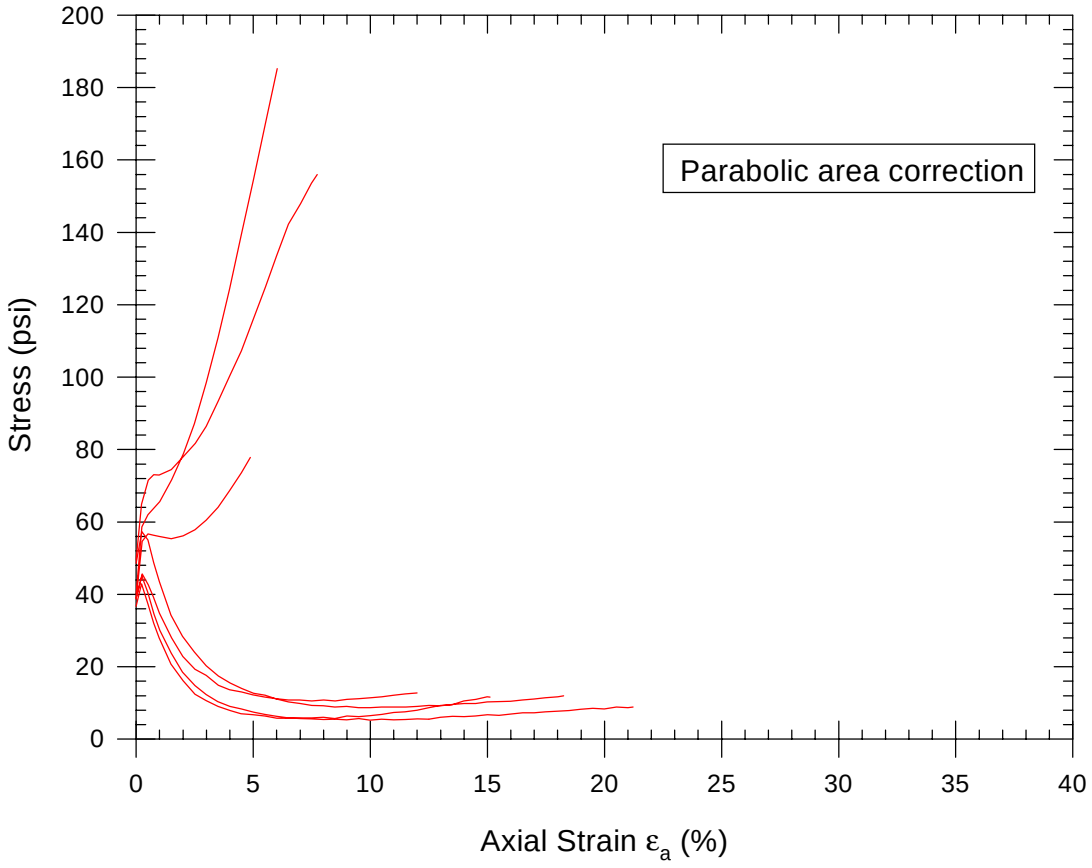
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3'con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

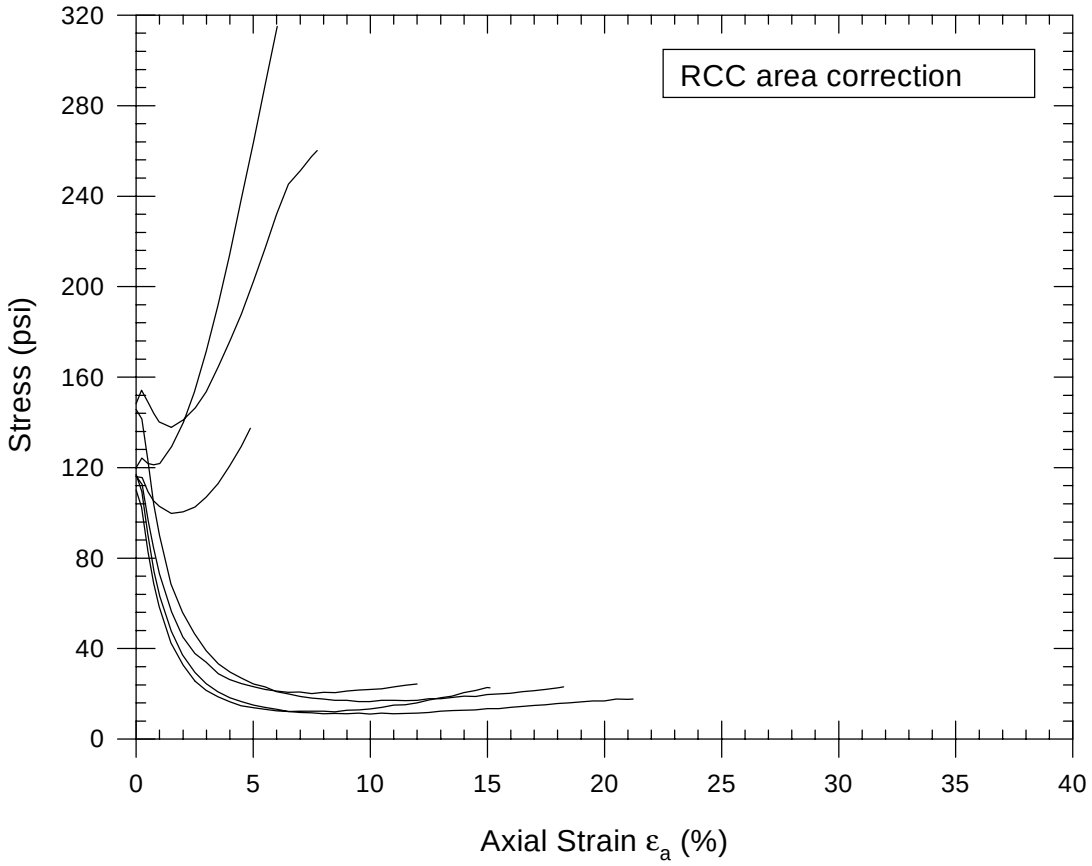
Major Principal Effective Stress-Strain
σ_1'



e	$\sigma_{3\,con}'$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

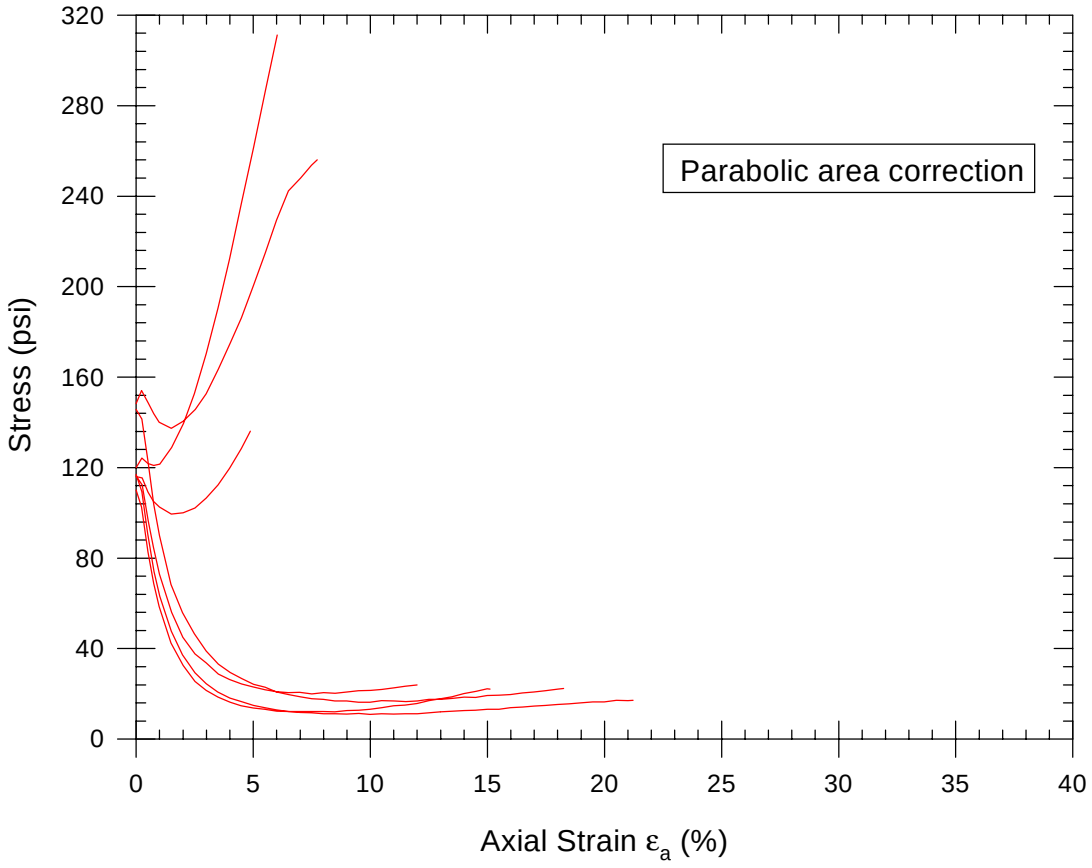
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3'con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

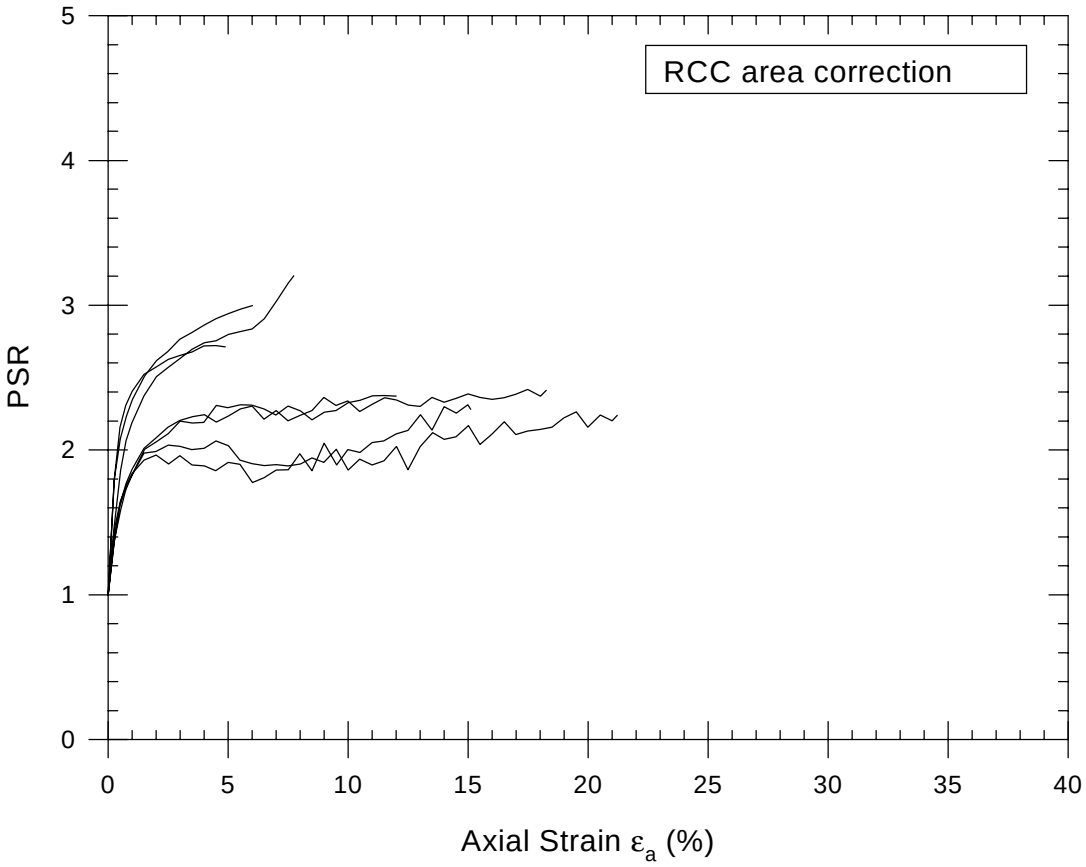
Bulk Effective Stress-Strain
$\sigma_1'+2\sigma_3'$



e	$\sigma_{3\,con}'$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

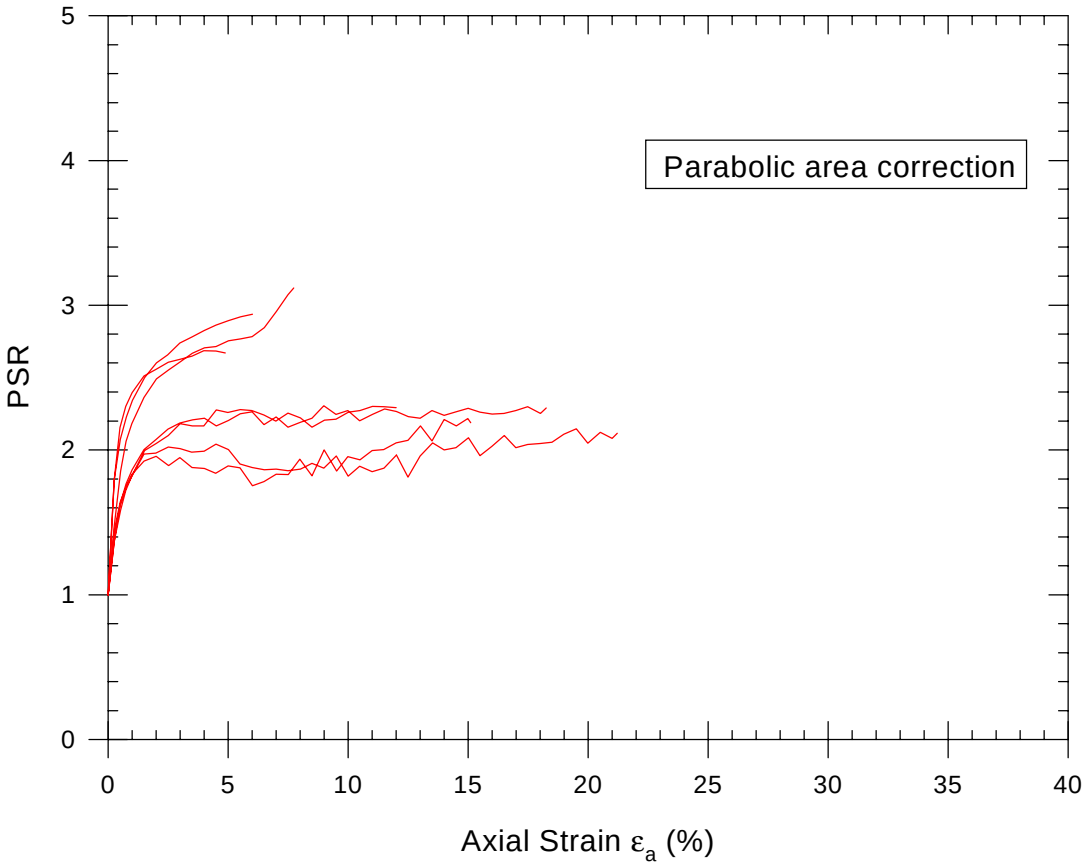
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

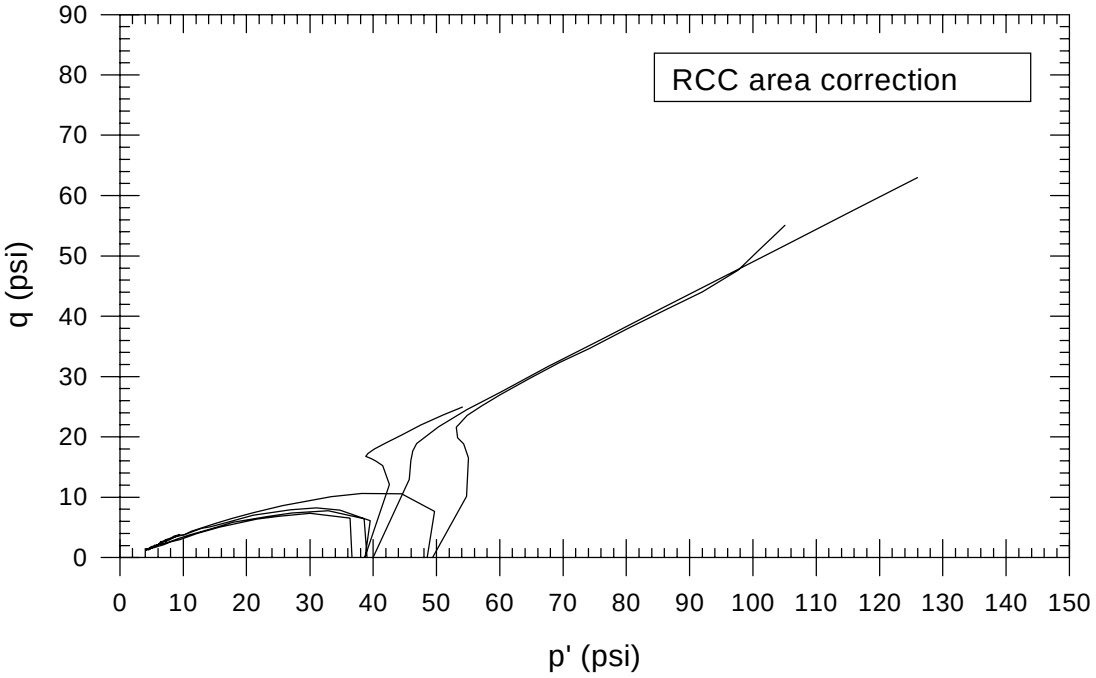
Principal Stress Ratio



e	$\sigma_3'_{con}$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

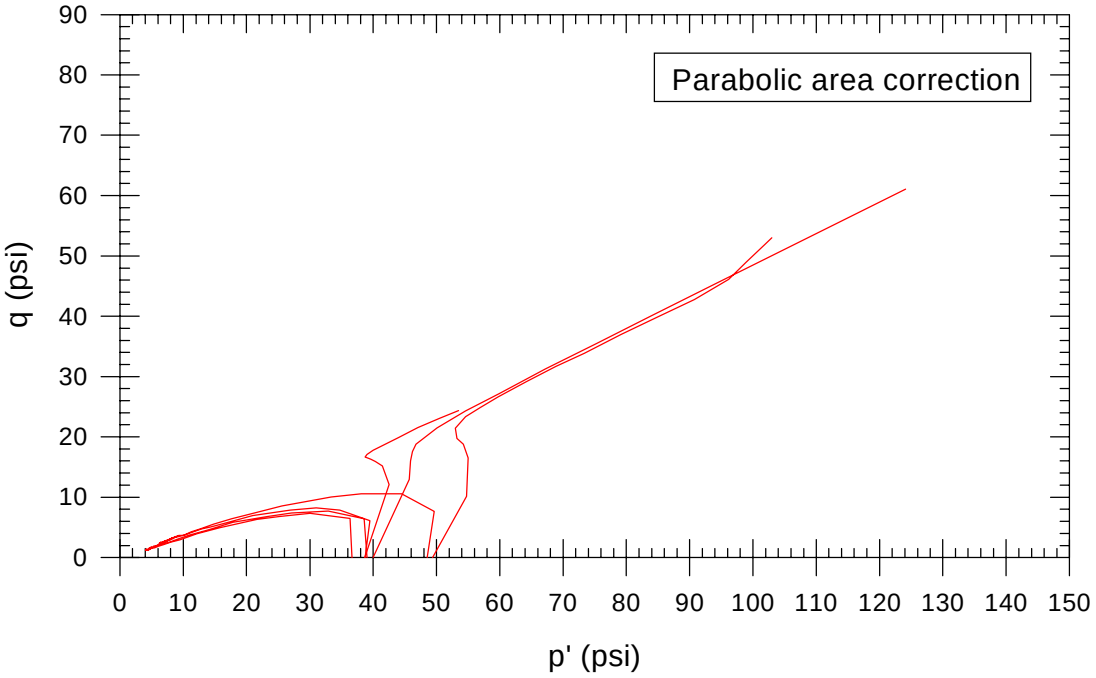
Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49

Ottawa Sand
Lubricated Ends

Stress Paths



e	$\sigma_{3\,con}'$ (psi)
0.612	40
0.646	50
0.698	39
0.703	39
0.727	39
0.739	37
0.740	49