



**JOB #** \_\_\_\_\_

# SRW JOB INFORMATION SHEET

**JOB SITE ADDRESS:** \_\_\_\_\_ Phone # \_\_\_\_\_  
Scheduled Date \_\_\_\_\_ Directions \_\_\_\_\_

**OWNERS NAME (S):** \_\_\_\_\_ Phone # (h) \_\_\_\_\_ (w) \_\_\_\_\_

**GENERAL CONTRACTOR:** \_\_\_\_\_ Contact \_\_\_\_\_ Phone \_\_\_\_\_

**ARCHITECT:** \_\_\_\_\_ Contact \_\_\_\_\_ Phone \_\_\_\_\_

**PLANS:** \_\_\_\_\_ Specs \_\_\_\_\_ Date \_\_\_\_\_ # Pages \_\_\_\_\_

Engineered Shop Drawings \_\_\_\_\_ Building Permit \_\_\_\_\_

**UTILITY LOCATOR CONFIRMATION # :** \_\_\_\_\_ Date \_\_\_\_\_ Call placed by \_\_\_\_\_

**OTHER CONTRACTORS ON SITE:**

Company \_\_\_\_\_ Trade \_\_\_\_\_ Phone # \_\_\_\_\_

Company \_\_\_\_\_ Trade \_\_\_\_\_ Phone # \_\_\_\_\_

Company \_\_\_\_\_ Trade \_\_\_\_\_ Phone # \_\_\_\_\_

**ROAD RESTRICTIONS:** Location \_\_\_\_\_ Weight \_\_\_\_\_ Date \_\_\_\_\_

**DEMOLITION:** Yes / No Self / Others

Company \_\_\_\_\_ Contact \_\_\_\_\_ Phone # \_\_\_\_\_

Concrete \_\_\_\_\_ Asphalt \_\_\_\_\_ Thickness \_\_\_\_\_ Sq.Ft. \_\_\_\_\_

Method \_\_\_\_\_ Dump Site Location: \_\_\_\_\_

Access \_\_\_\_\_ Obstructions \_\_\_\_\_

**EXCAVATING CONTRACTOR:**

Company \_\_\_\_\_ Contact: \_\_\_\_\_ Phone # \_\_\_\_\_

Excavation Depth \_\_\_\_\_ GEOTEXTILE Yes / No Type \_\_\_\_\_ Sq. ft. \_\_\_\_\_

Base Depth \_\_\_\_\_ Tons \_\_\_\_\_ Base Type \_\_\_\_\_ Tons \_\_\_\_\_

**TRUCKING COMPANY:** (scheduled Yes / No) \_\_\_\_\_ When \_\_\_\_\_

Company \_\_\_\_\_ Contact \_\_\_\_\_ Phone # \_\_\_\_\_

Dump Site Locations \_\_\_\_\_

**LEVELING PAD MATERIAL SUPPLIER:**

Company \_\_\_\_\_ Contact \_\_\_\_\_ Phone # \_\_\_\_\_

**DRAINAGE AGGREGATE MATERIAL SUPPLIER:**

Company \_\_\_\_\_ Contact \_\_\_\_\_ Phone # \_\_\_\_\_

**BACK FILL MATERIAL SUPPLIER:**

Company \_\_\_\_\_ Contact \_\_\_\_\_ Phone # \_\_\_\_\_

**BLOCK SUPPLIER:** Order # \_\_\_\_\_ Delivery Schedule / Equipment \_\_\_\_\_

Company \_\_\_\_\_ Contact \_\_\_\_\_ Phone # \_\_\_\_\_

**BLOCK:** Manufacturer / Type / Style \_\_\_\_\_ Size / Height \_\_\_\_\_ Color \_\_\_\_\_ Qty \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**CAP:** Type / Style \_\_\_\_\_ Size / Height \_\_\_\_\_ Color \_\_\_\_\_

Qty \_\_\_\_\_ Application \_\_\_\_\_ Supplier \_\_\_\_\_

**BONDING CAPS:** Lineal ft. \_\_\_\_\_ Sq. ft. \_\_\_\_\_ Qty of Adhesive \_\_\_\_\_ Type \_\_\_\_\_

**GEOGRID:** Yes / No \_\_\_\_\_ Type: \_\_\_\_\_ sq/yd: \_\_\_\_\_

**DRAIN TILE:** Yes / No \_\_\_\_\_ Linear Ft. \_\_\_\_\_

**PAVE EDGE:** Linear Ft. RIGID \_\_\_\_\_ Linear Ft. FLEXIBLE \_\_\_\_\_ # of SPIKES \_\_\_\_\_

**EQUIPMENT RENTAL:**

Company \_\_\_\_\_ Phone# \_\_\_\_\_ Type \_\_\_\_\_ Pick-Up / Delivery \_\_\_\_\_

Company \_\_\_\_\_ Phone# \_\_\_\_\_ Type \_\_\_\_\_ Pick-Up / Delivery \_\_\_\_\_

**ELECTRICAL:** Fuse box location \_\_\_\_\_ 110v /220v In / Out / No Location \_\_\_\_\_

**WATER:** Yes / No In / Out / No Location \_\_\_\_\_

**BATHROOM:** On / Off Site Public / Private Location \_\_\_\_\_



**JOB #** \_\_\_\_\_

# SRW JOB ESTIMATING DETAIL SHEET

NOTE: Equipment Costs and Labor Costs should be reduced to hourly or per square foot, or both. This will help facilitate your math. For metric system be sure to convert meters to feet and cubic meters to yards before calculating estimated price.

|  |   |
|--|---|
| <p style="text-align: center;"><b>3. DEMOLITION</b></p> <p>a) EQUIPMENT (\$ per hour x # hours) a) \$ _____</p> <p>b) LABOR b) \$ _____</p> <p>c) TRUCKING c) \$ _____<br/>(tons of excavated material ÷ into truck capacity = # of loads x hrs. each load x # hrs.)</p> <p>d) DUMP FEES (# of loads or tons x fee) d) \$ _____</p> <p style="text-align: right;"><b>Subtotal for #3 \$</b> _____</p>  | <p style="text-align: center;"><b>10. DRAINAGE</b></p> <p>a) DRAIN TILE a) \$ _____<br/>(Drain Tile \$ _____/ft. x Total Lineal ft.)</p> <p>b) FITTINGS (material &amp; labor) b) \$ _____</p> <p>c) CLEAN AGGREGATE c) \$ _____<br/>(wall height x wall length x 1ft.)</p> <p>d) FILTER FABRIC d) \$ _____<br/>(Fabric \$ _____/sq ft x wall height x wall length)</p> <p style="text-align: right;"><b>Subtotal for #10 \$</b> _____</p>  |
| <p style="text-align: center;"><b>4. EXCAVATION (Self)</b></p> <p>a) LAYOUT + SET GRADE a) \$ _____</p> <p>b) EQUIPMENT b) \$ _____</p> <p>c) LABOR c) \$ _____</p> <p>d) TRUCKING d) \$ _____<br/>(tons of excavated material ÷ into truck capacity = # of loads x hrs. each load x # hrs.)</p> <p>e) DUMP FEES (# of loads or tons x fee) e) \$ _____</p> <p style="text-align: right;"><b>Subtotal for #4 \$</b> _____</p>  | <p style="text-align: center;"><b>11. GEOGRID</b></p> <p>a) GRID a) \$ _____<br/>(Grid \$ _____/ft. x wall height x wall set perpendicular to wall face) x (# of courses used)</p> <p style="text-align: right;"><b>Subtotal for #11 \$</b> _____</p>   |
| <p style="text-align: center;"><b>6. LEVELING PAD (Self)</b></p> <p>a) SUBGRADE COMPACTION a) \$ _____<br/>(equipment &amp; labor per hour)</p> <p>b) GEOTEXTILE (If Required) b) \$ _____<br/>(material &amp; labor x 110% of job sq.ft.)</p> <p>c) AGGREGATES c) \$ _____<br/>(pavement sq.ft. &amp; base extension sq.ft. = total sq.ft. x material x depth)</p> <p>d) TRUCKING (# hours, by load or by ton) d) \$ _____</p> <p>e) PLACEMENT (include rough grading) e) \$ _____<br/>(equipment &amp; labor x hours)</p> <p>f) UTILITY LINE SLEEVING f) \$ _____<br/>(material &amp; labor)</p> <p>g) COMPACTION (initial) g) \$ _____<br/>(equipment &amp; labor x hours)</p> <p>h) BASE WATERING (labor x hours) h) \$ _____</p> <p>i) FINISH GRADING i) \$ _____<br/>(equipment &amp; labor x hours)</p> <p>j) COMPACTION (finish) j) \$ _____<br/>(equipment &amp; labor x hours)</p> <p>k) VERIFY ELEVATIONS (labor) k) \$ _____</p> <p style="text-align: right;"><b>Subtotal for #6 \$</b> _____</p> | <p style="text-align: center;"><b>12. BLOCK</b></p> <p>a) MATERIAL a) \$ _____</p> <p>b) TRUCKING b) \$ _____</p> <p>c) PLACEMENT (move to wall) c) \$ _____<br/>(equipment &amp; labor)</p> <p>d) LAYING d) \$ _____<br/>(labor including layers &amp; feeders)</p> <p>e) CUTTING (per lineal foot x total lineal) e) \$ _____<br/>(factor in diamond blade life here)</p> <p>f) CUTS &amp; WASTE f) \$ _____</p> <p style="text-align: right;"><b>Subtotal for #12 \$</b> _____</p>   |
| <p style="text-align: center;"><b>9. SAND for CUSHONING PAD</b></p> <p>a) MATERIAL a) \$ _____<br/>(coarse washed concrete sand)</p> <p>b) MATERIAL JOINTING b) \$ _____<br/>(\$/ton or \$/bags per # sq. ft.)</p> <p>c) TRUCKING c) \$ _____</p> <p>d) PLACEMENT d) \$ _____<br/>(move from pile to locations in trench) (equipment &amp; labor &amp; hours)</p> <p>e) SCREEDING (sq. ft. &amp; labor hours) e) \$ _____</p> <p style="text-align: right;"><b>Subtotal for #9 \$</b> _____</p>  | <p style="text-align: center;"><b>13. CAPPING</b></p> <p>a) MATERIAL a) \$ _____</p> <p>b) TRUCKING b) \$ _____</p> <p>c) PLACEMENT (move to wall) c) \$ _____<br/>(equipment &amp; labor)</p> <p>d) LAYING d) \$ _____<br/>(labor including layers &amp; feeders)</p> <p>e) SPLITTING (per lineal foot x total lineal) e) \$ _____<br/>(factor in diamond blade life here)</p> <p>f) CUTS &amp; WASTE f) \$ _____</p> <p>g) BONDING g) \$ _____<br/>(PAVE TECH Adhesive &amp; Labor / ft)</p> <p style="text-align: right;"><b>Subtotal for #13 \$</b> _____</p> |
| <p style="text-align: center;"><b>14. CLEAN UP</b></p> <p>a) CONSOLIDATE EXCESS MATERIALS a) \$ _____<br/>(equipment &amp; labor)</p> <p>b) BACKFILL &amp; GRADE b) \$ _____<br/>(material, equipment &amp; labor)</p> <p>c) PAVERS SWEEPED OFF c) \$ _____<br/>(equipment &amp; labor)</p> <p>d) SITE CLEAN-UP (labor) d) \$ _____</p> <p>e) MATERIALS REMOVED e) \$ _____</p> <p style="text-align: right;"><b>Subtotal for #14 \$</b> _____</p>   |   |



**JOB #** \_\_\_\_\_

# SRW JOB ESTIMATING SHEET

NOTE: Equipment Costs and Labor Costs should be reduced to hourly or per square foot, or both. This will help facilitate your math. For metric system be sure to convert meters to feet and cubic meters to yards before calculating estimated price.

|                  | CATEGORY   |    | COST      |
|------------------|--|----|-----------|
| 1                | <b>ESTIMATING AND BID</b> (labor and expenses)   | 1  |           |
| 2                | <b>MOBILIZE EQUIPMENT &amp; LABOR</b> (at start and end of job)  | 2  |           |
| 3                | <b>DEMOLITION</b> (use detail sheet)   | 3  |           |
| 4                | <b>EXCAVATION (self)</b> (use detail sheet)  | 4  |           |
| 5                | <b>EXCAVATION (sub-contract)</b>   | 5  |           |
| 6                | <b>LEVELING PAD PREPARATION (self)</b> (use detail sheet)  | 6  |           |
| 7                | <b>LEVELING PAD PREPARATION</b> (sub-contract)<br>NOTE: Be sure any <b>BASE BID</b> covers all items <b>A-K</b> as in #7 on Detail Sheet.<br>NOTE: Trench width should be excavated two times the width of the block or the width of the compactor plate, which ever is greater. | 7  |           |
| 8                | <b>PAVE EDGE Edge Restraint</b><br>Edging \$ _____/ft. + Spikes \$ _____/ft. + Labor \$ _____/ft. X Total Job Lineal Ft.   | 8  |           |
| 9                | <b>SAND for CUSHONING PAD</b> (use detail sheet)   | 9  |           |
| 10               | <b>DRAINAGE</b> (use detail sheet)   | 10 |           |
| 11               | <b>GEOGRID</b> (use detail sheet)  | 11 |           |
| 12               | <b>BLOCK</b> (use detail sheet)  | 12 |           |
| 13               | <b>CAPPING</b> (use detail sheet)  | 13 |           |
| 14               | <b>CLEAN-UP</b> (use detail sheet)   | 14 |           |
| <b>SUB TOTAL</b> |  |    | <b>\$</b> |

|   |                    |
|---|--------------------|
| <b>IN HOUSE COST</b> (Combine #'s 1, 2, 3, 4, 7, 9, 10, 11, 12)   | \$                 |
| <b>SUB CONTRACT COST</b> (Combine #'s 3, 5, 6, 7)   | \$                 |
| <b>BID and/or PERFORMANCE INSURANCE BOND</b>  | \$                 |
| <b>OVERHEAD</b> (Number of days for job. See <b>OVERHEAD SHEET, FORM PMOS</b> )<br>Take total annual overhead budget amount and divide by number of annual work days. | \$                 |
| <b>JOB DISCOUNTS</b> (Promo, Builder, Home Shows, etc.)   | \$                 |
| <b>SALES OR COMMISSION FEES</b>   | \$                 |
| <b>JOB COST GRAND TOTAL</b>   | <b>JOB COST \$</b> |
| <b>CONTINGENCY (% OF JOB COST)</b>  | \$                 |
| <b>PROFIT (% OF COST)</b>   | \$                 |
| <b>BID TOTAL</b>  | <b>\$</b>          |



JOB # \_\_\_\_\_

# SRW JOB FOLLOW UP COSTING SHEET

|   | BID | ACTUAL | + \$ DOLLARS | + % PERCENT |
|---|-----|--------|--------------|-------------|
| <b>1 ESTIMATING AND BID</b>   |     |        |              |             |
| Labor   |     |        |              |             |
| Expenses  |     |        |              |             |
| <b>2 MOBILIZE EQUIP/LABOR</b>   |     |        |              |             |
| Labor   |     |        |              |             |
| Expenses  |     |        |              |             |
| <b>3 DEMOLITION</b>   |     |        |              |             |
| Labor   |     |        |              |             |
| Equipment   |     |        |              |             |
| Trucking  |     |        |              |             |
| <b>4 EXCAVATION (self)</b>  |     |        |              |             |
| Layout & set grade  |     |        |              |             |
| Labor   |     |        |              |             |
| Equipment   |     |        |              |             |
| Trucking  |     |        |              |             |
| <b>5 EXCAVATION (sub-contract)</b>  |     |        |              |             |
| <b>6 LEVELING PAD PREP (self)</b>   |     |        |              |             |
| Aggregate   |     |        |              |             |
| Geotextile  |     |        |              |             |
| Labor   |     |        |              |             |
| Equipment   |     |        |              |             |
| Trucking  |     |        |              |             |
| <b>7 LEVELING PAD (sub-contract)</b>  |     |        |              |             |
| <b>8 PAVE EDGE Edging</b>   |     |        |              |             |
| Labor   |     |        |              |             |
| Edging  |     |        |              |             |
| Spikes  |     |        |              |             |
| <b>9 SAND for CUSHONING PAD</b>   |     |        |              |             |
| <b>10 DRAINAGE</b>  |     |        |              |             |
| Drain Tile  |     |        |              |             |
| Fittings  |     |        |              |             |
| Clean Aggregate   |     |        |              |             |
| Filter Fabric   |     |        |              |             |
| <b>11 BLOCK</b>   |     |        |              |             |
| Materials   |     |        |              |             |
| Alignment Devices (Pins, Clips etc...)  |     |        |              |             |
| Trucking  |     |        |              |             |
| Labor/Hours   |     |        |              |             |
| Equipment   |     |        |              |             |
| <b>12 GEOGRID</b>   |     |        |              |             |
| <b>13 CAPPING</b>   |     |        |              |             |
| Material  |     |        |              |             |
| Trucking  |     |        |              |             |
| Labor / Hours   |     |        |              |             |
| Equipment   |     |        |              |             |
| Cutting   |     |        |              |             |
| Adhesives   |     |        |              |             |
| <b>14 CLEAN-UP</b>  |     |        |              |             |
| Labor/Hours   |     |        |              |             |
| Equipment   |     |        |              |             |
| Trucking  |     |        |              |             |
| Backfill material   |     |        |              |             |
| <b>OVERHEAD COST</b>  |     |        |              |             |
| Note: (Take total annual overhead budget amount and divide by # of annual workdays) |     |        |              |             |
| <b>TOTALS</b>   | \$  | \$     | + \$         | + %         |

TOTAL (Gain/Loss ±) \$ \_\_\_\_\_



**JOB #** \_\_\_\_\_

# SRW CONTRACTOR MONTHLY OVERHEAD SHEET

| ACCOUNTING CODE | OVERHEAD DESCRIPTION   | BUDGET    | ACTUAL    | OVER/UNDER BUDGET |
|-----------------|--|-----------|-----------|-------------------|
| 100             | Printing   |           |           |                   |
| 110             | Postage/UPS  |           |           |                   |
| 120             | Advertising, Yellow Pages, Newspaper, etc.                       |           |           |                   |
| 130             | Dues and Subscriptions   |           |           |                   |
| 140             | Professional Fees (Lawyer, Accountant)                           |           |           |                   |
| 150             | Telephone  |           |           |                   |
| 155             | Rent Office  |           |           |                   |
| 160             | Utilities  |           |           |                   |
| 170             | Rent Warehouse   |           |           |                   |
| 190             | Office Supplies  |           |           |                   |
| 200             | Licences   |           |           |                   |
| 205             | Travel & Entertainment   |           |           |                   |
| 210             | Salary (Officers/Owners)   |           |           |                   |
| 220             | Office/Clerical Wages  |           |           |                   |
| 230             | Insurance (property, equip., health, liability, work comp, etc.) |           |           |                   |
| 240             | Depreciation (office machines, construction equipment)           |           |           |                   |
| 250             | Interest & Bank/Finance Charges                                  |           |           |                   |
| 260             | Education/Training (for self or employees)                       |           |           |                   |
| 510             | Bad Debts  |           |           |                   |
| 520             | Uniforms & Safety Equipment                                      |           |           |                   |
| 530             | Downtime (Equipment)   |           |           |                   |
| 540             | Dawntime (Labor Burden)  |           |           |                   |
| 555             | Equipment Maintenance  |           |           |                   |
| 560             | Equipment/Vehicle Lease  |           |           |                   |
| 565             | Vehicle & Equipment Expenses                                     |           |           |                   |
|                 |  |           |           |                   |
|                 |  |           |           |                   |
|                 |  |           |           |                   |
| <b>TOTALs</b>   |  | <b>\$</b> | <b>\$</b> | <b>\$</b>         |

**TOTAL OVERHEAD**

SUB-TOTAL Gain (or Loss) ± from Budget                   \$ \_\_\_\_\_  
 OVER/UNDER BILLING ADJUSTMENT                           \$ \_\_\_\_\_  
**QUARTERLY (or bi-annual) ADJUSTMENT**                   \$ \_\_\_\_\_  
 Accounting Code # \_\_\_\_\_ ±                               \$ \_\_\_\_\_  
**TOTAL ADJUSTED MONTHLY GAIN (or loss)±**               \$ \_\_\_\_\_  
**TOTAL ADJUSTED YEAR TO DATE GAIN (or loss)±**       \$ \_\_\_\_\_

**ANNUAL OVERHEAD COMPUTATIONS**

PROJECTED NUMBER OF WORKING DAYS THIS FISCAL YEAR # \_\_\_\_\_

**PROJECTED OVERHEAD COST PER WORKING DAY**

\$ \_\_\_\_\_ /Day

NOTE: Take the number of projected working days this year and divide into projected annual budget. This gives you projected overhead cost per working day. Use this figure when filling in the overhead on the Estimating Sheet.



### Material Weights and Swell Factors

### Excavation Factors

### Metric-US Conversion Factors (Based on National Bureau of Standards)

| Material                | Per C/Y (Loose) | Per C.Y (in Place) | Percent of Swell | Swell Factors | Depth  | Cubic Yards per Square Foot |
|-------------------------|-----------------|--------------------|------------------|---------------|--------|-----------------------------|
| Cement, portland        | 2450            | 2950               | 20               | .83           | 2"     | .00617                      |
| Clay, natural red       | 2700            | 3500               | 30               | .77           | 4"     | .01235                      |
| Clay and gravel, dry    | 2300            | 3100               | 34               | .74           | 6"     | .01852                      |
| Clay and gravel, wet    | 2600            | 3500               | 34               | .72           | 8"     | .02469                      |
| Concrete                | 2650            | 3700               | 40               | .72           | 10"    | .03086                      |
| Concrete, wet mix       | 3600            | 3600               | 40               | .72           | 1'-0"  | .03704                      |
| Earth, dry loam         | 2300            | 2850               | 25               | .81           | 1'-6"  | .05555                      |
| Earth, wet loam         | 2750            | 3400               | 24               | .81           | 2'-0"  | .07407                      |
| Granite                 | 2800            | 4560               | 65               | .60           | 2'-6"  | .09259                      |
| Gravel, 1/4 to 2" dry   | 2850            | 3200               | 12               | .89           | 3'-0"  | .11111                      |
| Gravel, 1/4 to 2" wet   | 3200            | 3600               | 13               | .89           | 3'-6"  | .13333                      |
| Laterite                | 3900            | 5200               | 33               | .75           | 4'-0"  | .14815                      |
| Limestone, blasted      | 2500            | 4250               | 69               | .59           | 4'-6"  | .16667                      |
| Limestone, crushed      | 2700            | 4500               | 67               | .60           | 5'-0"  | .18519                      |
| Limestone, marble       | 2700            | 4550               | 69               | .59           | 5'-6"  | .20370                      |
| Mud, dry                | 2100            | 2550               | 21               | .82           | 6'-0"  | .22222                      |
| Mud, wet                | 2650            | 3200               | 21               | .83           | 6'-6"  | .24074                      |
| Sand, dry               | 2750            | 3100               | 13               | .89           | 7'-0"  | .25926                      |
| Sand, wet               | 3150            | 3600               | 14               | .88           | 7'-6"  | .27777                      |
| Sandstone, shot         | 2700            | 4250               | 58               | .64           | 8'-0"  | .29630                      |
| Shale, riprap           | 2100            | 2800               | 33               | .75           | 8'-6"  | .31481                      |
| Slate                   | 3600            | 4700               | 30               | .77           | 9'-0"  | .33333                      |
| Coral, class No.2, soft | 1760            | 2900               | 65               | .61           | 9'-6"  | .35185                      |
| Coral, class No.1, hard | 2030            | 2900               | 67               | .60           | 10'-0" | .37037                      |

Percent of swell times the bank (in place) cubic yards equals the loose cubic yards to be removed.

Swell factor times the loose cubic yards equals bank cubic yards being moved.

Multiply the excavation factor by the area in square feet to find the cubic yards of soil to be excavated. Example: Assume an excavation 24 ft. x 30 ft. and 6 ft. deep. 24 x 30 = 720. In the table the 6 ft. depth has a factor of .22222 (the number of cu.yd. in an excavation 1 ft. square and 6 ft. deep). 720 x .22222 = 160 Cu. Yds.

| AREA     |           |            |
|----------|-----------|------------|
| Sq.cm    | x 0.1550  | = sq.ins   |
| Sq.ins.  | x 6.4516  | = sq.cm    |
| Sq.m     | x 10.7639 | = sq.ft    |
| Sq.ft    | x 0.0929  | = sq.m     |
| Ares     | x 1076.39 | = sq.ft    |
| Sq.ft    | x 0.00093 | = ares     |
| Sq.m     | x 1.1960  | = sq.yds.  |
| Sq.yds.  | x 0.8361  | = sq.m     |
| Hectare  | x 2.4710  | = acres    |
| Acre     | x 0.4047  | = hectares |
| Sq.km    | x 0.3861  | =sq.miles  |
| Sq.miles | x 2.5900  | =sq.km     |

| LENGTH      |          |               |
|-------------|----------|---------------|
| Centimeters | x 0.3937 | = inches      |
| Inches      | x 2.5400 | = centimeters |
| Meters      | x 3.3808 | = feet        |
| Feet        | x 0.3048 | = meters      |
| Meters      | x 1.0936 | = yards       |
| Yards       | x 0.9144 | = meters      |
| Kilometers  | x 0.6214 | = miles       |
| Miles       | x 1.6093 | = kilometers  |

| PRESSURE               |           |                          |
|------------------------|-----------|--------------------------|
| Tons (long) per sq.ft. | x 10949.0 | = kg. per sq.m           |
| Kgs. per sq.mm         | x .634973 | = tons (long) per sq.in. |
| Tons (long) per sq.in. | x 1.57494 | = kg. per sq.mm          |
| Kgs per cu.m           | x 0.62428 | = lbs. per cu.ft.        |
| Lbs. per cu.ft.        | x 16.0184 | = kgs. per cu.m          |
| Kgs. per m             | x .671972 | = lbs. per ft.           |
| Lbs. per ft.           | x 1.48816 | = kgs. per m             |
| Kg./m                  | x 7.233   | = ft.lbs                 |
| Ft. Lbs.               | x .13826  | = kg./m                  |

| WEIGHT       |             |                |
|--------------|-------------|----------------|
| Kgs.         | x 2.2046    | = lbs.         |
| Lbs.         | x 0.4536    | = kg.          |
| Kgs.         | x 0.0011    | = tons (short) |
| Lbs.         | x 0.0004536 | = tons*        |
| Kgs.         | x 0.00098   | = tons (long)  |
| Tons (short) | x 907.1848  | = kg.          |
| Tons*        | x 1.1023    | = tons (short) |
| Tons (short) | x 0.9072    | = tons*        |
| Tons*        | x 2204.62   | = lbs.         |
| Tons (long)  | x 1016.05   | = kg.          |

| VOLUME  |           |          |
|---------|-----------|----------|
| Cu.m    | x 35.3145 | = cu.ft  |
| Cu.ft   | x 0.0283  | = cu.m   |
| Cu.m    | x 1.3079  | = cu.yds |
| Cu.yds. | x 0.7646  | = cu.m   |

### Area and Circumference of Circles (Inches)

| Dia.  | Area   | Cir.  | Dia.   | Area   | Cir.  | Dia.   | Area   | Cir.  | Dia. | Area   | Cir.  | Dia. | Area   | Cir.  | Dia. | Area   | Cir.  |
|-------|--------|-------|--------|--------|-------|--------|--------|-------|------|--------|-------|------|--------|-------|------|--------|-------|
| 1/8   | 0.0123 | .3926 | 4 1/2  | 15.904 | 14.13 | 16 1/2 | 213.82 | 51.83 | 32   | 804.24 | 100.5 | 56   | 2463.0 | 175.9 | 80   | 5026.5 | 251.3 |
| 1/4   | 0.0491 | .7754 | 5      | 19.635 | 15.70 | 17     | 226.98 | 53.40 | 33   | 855.30 | 103.6 | 57   | 2551.7 | 179.0 | 81   | 5153.0 | 254.4 |
| 3/8   | 0.1104 | 1.178 | 5 1/2  | 23.758 | 17.27 | 17 1/2 | 240.52 | 54.97 | 34   | 907.92 | 106.8 | 58   | 2642.0 | 182.2 | 82   | 5281.0 | 257.6 |
| 1/2   | 0.1963 | 1.570 | 6      | 28.274 | 18.84 | 18     | 254.46 | 56.54 | 35   | 962.11 | 109.9 | 59   | 2733.9 | 185.3 | 83   | 5410.6 | 260.7 |
| 5/8   | 0.3067 | 1.963 | 6 1/2  | 33.183 | 20.42 | 18 1/2 | 268.80 | 58.11 | 36   | 1017.8 | 113.0 | 60   | 2827.4 | 188.4 | 84   | 5541.7 | 263.8 |
| 3/4   | 0.4417 | 2.356 | 7      | 38.484 | 21.99 | 19     | 283.52 | 59.69 | 37   | 1075.2 | 116.2 | 61   | 2922.4 | 191.6 | 85   | 5674.5 | 267.0 |
| 7/8   | 0.6013 | 2.748 | 7 1/2  | 44.178 | 23.56 | 19 1/2 | 298.64 | 61.26 | 38   | 1134.1 | 119.3 | 62   | 3019.0 | 194.7 | 86   | 5808.8 | 270.1 |
| 1     | 0.7854 | 3.141 | 8      | 50.265 | 25.13 | 20     | 314.16 | 62.83 | 39   | 1194.5 | 122.5 | 63   | 3117.2 | 197.9 | 87   | 5944.6 | 273.3 |
| 1 1/8 | 0.9940 | 3.543 | 8 1/2  | 56.745 | 26.70 | 20 1/2 | 330.06 | 64.40 | 40   | 1256.6 | 125.6 | 64   | 3216.9 | 201.0 | 88   | 6082.1 | 276.4 |
| 1 1/4 | 1.227  | 3.927 | 9      | 63.617 | 28.27 | 21     | 346.36 | 65.97 | 41   | 1320.2 | 128.8 | 65   | 3318.3 | 204.2 | 89   | 6221.1 | 279.6 |
| 1 3/8 | 1.484  | 4.319 | 9 1/2  | 70.882 | 29.84 | 21 1/2 | 363.05 | 67.54 | 42   | 1385.4 | 131.9 | 66   | 3421.2 | 207.3 | 90   | 6361.7 | 282.7 |
| 1 1/2 | 1.767  | 4.712 | 10     | 78.54  | 31.41 | 22     | 380.13 | 69.11 | 43   | 1452.2 | 135.0 | 67   | 3525.6 | 210.4 | 91   | 6503.8 | 285.8 |
| 1 5/8 | 2.073  | 5.105 | 10 1/2 | 86.59  | 32.98 | 22 1/2 | 394.60 | 70.68 | 44   | 1520.5 | 138.2 | 68   | 3631.6 | 213.6 | 92   | 6647.6 | 289.0 |
| 1 3/4 | 2.405  | 5.497 | 11     | 95.03  | 34.55 | 23     | 415.47 | 72.25 | 45   | 1590.4 | 141.3 | 69   | 3739.2 | 216.7 | 93   | 6792.9 | 292.1 |
| 1 7/8 | 2.761  | 5.890 | 11 1/2 | 103.86 | 36.12 | 23 1/2 | 433.73 | 73.82 | 46   | 1661.9 | 144.5 | 70   | 3848.4 | 219.9 | 94   | 6939.7 | 295.3 |
| 2     | 3.141  | 6.283 | 12     | 113.09 | 37.69 | 24     | 452.39 | 75.39 | 47   | 1734.9 | 147.6 | 71   | 3959.2 | 223.0 | 95   | 7088.2 | 298.4 |
| 2 1/4 | 3.976  | 7.068 | 12 1/2 | 122.71 | 39.27 | 24 1/2 | 471.43 | 76.96 | 48   | 1809.5 | 150.7 | 72   | 4071.5 | 226.1 | 96   | 7238.2 | 301.5 |
| 2 1/2 | 4.908  | 7.854 | 13     | 132.73 | 40.84 | 25     | 490.87 | 78.54 | 49   | 1885.7 | 153.9 | 73   | 4185.3 | 229.3 | 97   | 7389.8 | 304.7 |
| 2 3/4 | 5.939  | 8.639 | 13 1/2 | 143.13 | 42.41 | 26     | 530.93 | 81.68 | 50   | 1963.5 | 157.0 | 74   | 4300.8 | 232.4 | 98   | 7542.9 | 307.8 |
| 3     | 7.068  | 9.424 | 14     | 153.93 | 43.98 | 27     | 572.55 | 84.82 | 51   | 2042.8 | 160.2 | 75   | 4417.8 | 235.6 | 99   | 7697.7 | 311.0 |
| 3 1/4 | 8.295  | 10.21 | 14 1/2 | 165.13 | 45.55 | 28     | 615.75 | 87.96 | 52   | 2123.7 | 163.3 | 76   | 4536.4 | 238.7 |      |        |       |
| 3 1/2 | 9.621  | 10.99 | 15     | 176.71 | 47.12 | 29     | 660.52 | 91.10 | 53   | 2206.1 | 166.5 | 77   | 4656.0 | 241.9 |      |        |       |
| 3 3/4 | 11.044 | 11.78 | 15 1/2 | 188.69 | 48.69 | 30     | 706.86 | 94.24 | 54   | 2290.2 | 169.6 | 78   | 4778.3 | 245.0 |      |        |       |
| 4     | 12.566 | 12.56 | 16     | 201.06 | 50.26 | 31     | 754.76 | 97.38 | 55   | 2375.8 | 172.7 | 79   | 4901.6 | 248.1 |      |        |       |

### Decimal Equivalents of Fractions

| Inch  | mms    | 1000s   | Inch  | mms    | 1000s   | Inch  | mms    | 1000s   | Inch  | mms    | 1000s   |
|-------|--------|---------|-------|--------|---------|-------|--------|---------|-------|--------|---------|
| 1/64  | .39687 | .015625 | 17/64 | 6.7469 | .265625 | 33/64 | 13.907 | .515625 | 49/64 | 19.447 | .765625 |
| 1/32  | .79375 | .03125  | 9/32  | 7.1437 | .28125  | 17/32 | 13.494 | .53125  | 25/32 | 19.844 | .78125  |
| 3/64  | 1.1906 | .046875 | 19/64 | 7.5406 | .296875 | 35/64 | 13.891 | .546875 | 51/64 | 20.241 | .796875 |
| 1/16  | 1.5875 | .0625   | 5/16  | 7.9375 | .3125   | 9/16  | 14.287 | .5625   | 13/16 | 20.637 | .8125   |
| 5/64  | 1.9844 | .078125 | 21/64 | 8.3344 | .328125 | 37/64 | 14.684 | .578125 | 53/64 | 21.034 | .828125 |
| 3/32  | 2.3812 | .09375  | 11/32 | 8.7312 | .34375  | 19/32 | 15.081 | .59375  | 27/32 | 21.431 | .84375  |
| 7/64  | 2.7781 | .109375 | 23/64 | 9.1281 | .359375 | 39/64 | 15.478 | .609375 | 55/64 | 21.828 | .859375 |
| 1/8   | 3.1750 | .125    | 3/8   | 9.5250 | .376    | 5/8   | 15.875 | .625    | 7/8   | 22.225 | .875    |
| 9/64  | 3.5719 | .140625 | 25/64 | 9.9219 | .390625 | 41/64 | 16.272 | .640625 | 57/64 | 22.622 | .890625 |
| 5/32  | 3.9687 | .15625  | 13/32 | 10.319 | .40625  | 21/32 | 16.669 | .65625  | 29/32 | 23.019 | .90625  |
| 11/64 | 4.3656 | .171875 | 27/64 | 10.716 | .421875 | 43/64 | 17.066 | .671875 | 59/64 | 23.416 | .921875 |
| 3/16  | 4.7625 | .1875   | 7/16  | 11.112 | .4375   | 11/16 | 17.462 | .6875   | 15/16 | 23.812 | .9375   |
| 13/64 | 5.1594 | .203125 | 29/64 | 11.509 | .453125 | 45/64 | 17.859 | .703125 | 61/64 | 24.209 | .953125 |
| 7/32  | 5.5562 | .21875  | 15/32 | 11.906 | .46875  | 15/32 | 18.256 | .71875  | 31/32 | 24.606 | .96875  |
| 15/64 | 5.9531 | .234375 | 31/64 | 12.303 | .484375 | 47/64 | 18.653 | .734375 | 63/64 | 25.003 | .984375 |
| 1/4   | 6.3500 | .25     | 1/2   | 12.700 | .5      | 3/4   | 19.050 | .75     |       |        |         |

### Miscellaneous Useful Information

Area of Circle: Multiply square of diameter by .7854.  
 Area of Rectangle: Multiply length by breadth.  
 Area of Triangle: Multiply base by 1/2 perpendicular height.  
 Area of Ellipse: Multiply product of both diameters by .7854  
 Area of Sector of Circle: Multiply arc by 1/2 radius.  
 Area of Segment of Circle: Subtract area of triangle from area of sector of equal angle.  
 Area of Surface of Cylinder: Area of both ends plus length by circumference.  
 Area of Surface of Cone: Add area of base to circumference of base multiplied by 1/2 slant height.  
 Area of Surface of Sphere: Multiply diameter by 3.1416.  
 Circumference of Circle: Multiply diameter by 3.1416.  
 Cubic inches in Ball or Sphere: Multiply cube of diameter by .5236.  
 Cubic contents of Cone or Pyramid: Multiply area of base by 1/3 the altitude.  
 Cubic contents of Cylinder or Pipe: Multiply area of one end by length.  
 Cubic contents of Wedge: Multiply area of rectangular base by 1/2 height. Diameter of Circle: Multiply circumference by .31831.

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