



ASPHALT BINDER

Section 10 – Random Sampling Density

Random Sampling Density

- **Determine total production – weigh tickets**
- **Determine length and width – engineer**
- **Determine number of lots**
 - ▶ **One lot \leq 1500 t**
 - ▶ **One lot = 7 tests**
 - ▶ **Production < 1500 t; Use 1 lot, 7 tests**
 - ▶ **Production > 1500 t; Use 2 or more lots, 7 tests each**
 - ▶ **Lot can extend beyond 1 day**

Random Sampling Density (continued)

- **Select Random Numbers (0 to 1)**
 - ▶ **Table**
 - ▶ **Computer**
 - ▶ **Any other acceptable method**

- **Procedure with Table**
 - ▶ **Enter Table at any point to get entry number**
 - ▶ **Select row or column containing entry number; yield – 7 random number set**
 - ▶ **Use for longitudinal locations**
 - ▶ **Select other row or column containing entry number; yield; 7 random number set**
 - ▶ **Use for transverse locations**

Random Sampling Density (continued)

- **Determine lot size and subplot size**
 - ▶ **Divide total length by number of lots – log length**
 - ▶ **Divide length of lot by 7 – subplot length**

Random Sampling Density (continued)

- **Determine lot and subplot locations**
 - ▶ **Find begin paving station**
 - ▶ **Add subplot length to beginning station**
 - ◆ **Results – End station subplot 1, Begin station subplot 2**
 - ▶ **Add subplot length to beginning station of subplot 2**
 - ◆ **Results – End station subplot 2, Begin station subplot 3**
 - ▶ **Repeat for 7 sublots**
 - ▶ **Check by adding lot length to beginning station and compare to end station of subplot 7**

Random Sampling Density (continued)

- **Determine horizontal test locations**
 - ▶ **Multiply first random number of set 1 by subplot length**
 - ▶ **Subtract distance from end of subplot 1**
 - ▶ **Repeat for each subplot**

- **Determine transverse test locations**
 - ▶ **Subtract 0.6 meters from width**
 - ▶ **Multiply first random number of set 2 by result of step 1**
 - ▶ **Add 0.3 to result of step 2**
 - ▶ **Repeat for each subplot**

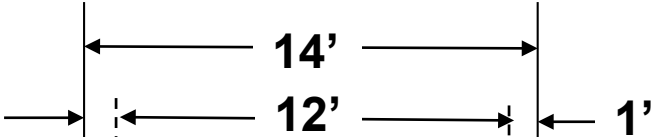
| A Total Production To be tested | B Beginning Station | C Ending Station | | D Total feet Paved (C - B = D) Lot Length | Width Paved (feet) | E Width Paved Minus 2 (feet) | | |
|---|-----------------------------------|--|---------------|--|--------------------------|--|---|---|
| 1350 | 240+80.00 | 344+80.00 | | 10,400' | 14 | 12' | | |
| F Number of Lots Represented (A/1500) | G Tons Per lot (A/F) | H Feet per lot (D/F) | | I Feet represented Per test (H/7) | | | | |
| 1 | 1350' | 10,400' | | 1485.7' | | | | |
| Number | J Random Number | Section Represented Beginning st. Ending st K L | | Test Station L-(J * I) | M Random Number | Dist. From Edge Horizontal Distance feet (ExM)+1 ft | Lane 1.Right 2.Center 3.Left | Lift 1.Upper 2.Lower 3.Total |
| 1 | 0.389 | 240+80 | 255+66 | 249+88 | 0.527 | 7.3 | | |
| 2 | 0.620 | 255+66 | 270+52 | 261+31 | 0.025 | 1.3 | | |
| 3 | 0.379 | 270+52 | 285+38 | 279+74 | 0.528 | 7.3 | | |
| 4 | 0.869 | 285+38 | 300+24 | 287+33 | 0.263 | 4.2 | | |
| 5 | 0.105 | 300+24 | 315+10 | 313+54 | 0.932 | 12.2 | | |
| 6 | 0.667 | 315+10 | 329+96 | 320+05 | 0.745 | 9.9 | | |
| 7 | 0.643 | 329+96 | 344+80 | 335+25 | 0.339 | 5.1 | | |
| | | | | | | | | |
| | | | | | | | | |

1350/1500 = 0.9
*Must be whole
number*

Problem 10-7

Ending Station for Lot

344+80



Sublot #7



329+96

Sublot #6



315+10

Sublot #5



300+24

Sublot #4



285+38

Sublot #3



270+52

Sublot #2



255+66

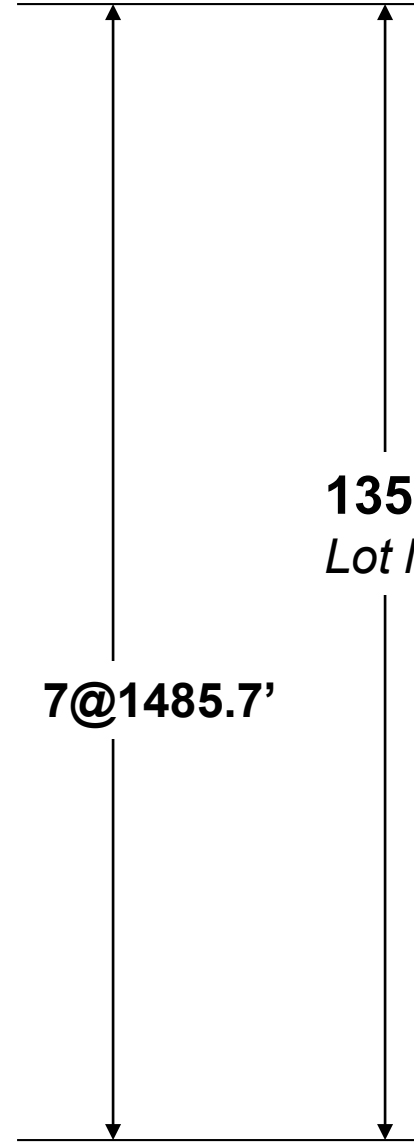
Sublot #1



Beginning Station for Lot

240+80

■ Core Locations
(Randomly Located)



No cores 1 ft from edges