

Grading & Base Unit

2012

**Grading & Base,
Pavement Preservation &
Reclamation Unit
(GBPP&R)
2012**

Outline

Reorganization of Unit

Specs 2012

G & B Manual changes

Organizational Changes

**Moved back to Pavement Section -
Maria Masten**

Now have:

- 1. SFDR, CIR & HIR**
- 2. Pavement Preservation (Chip Seals,
plus other Surface Treatments)**

**Aggregate Functions have been moved
to Geology Unit.**

Grading and Base Staff

- 1. Rebecca Embacher (Assistant G/B Engineer)**
- 2. Cary Efta (Grading & Base Specialist)**
- 3. Mark Watson (Assistant G/B Engineer)**
- 4. Terry Beaudry (Grading & Base Engineer)**

Spec Book

2012?

1. **Active Voice**
2. **New Specifications**
3. **Contractor Moisture Testing**
4. **Monetary Adjustment Tables**

3136 Drainable Bases – OGAB & DSB

Table 3136-1		
Permeable Bases, Total Percent Passing		
Sieve Size	OGAB	DSB
1½ in	100	100
1 in	95 – 100	-
¾ in	65 – 95	75 – 100
⅜ in	30 – 65	45 - 75
No. 4	10 – 35	30 - 60
No. 10	3 – 20	10 - 35
No. 40	0 – 8	5 - 20
No. 200	0 – 3.5	0 – 5.0%, for class B or C material, 0 - 6.5% for class A material. Classes defined per 3137, “Coarse Aggregate for Portland Cement Concrete”.
D_{60}/D_{10}^*	≥ 4	≥ 8

Tentative Projects

3136 Drainable Bases – DSB - 2012

Metro – Shoulder (Road Widening)

District 8 – Paynesville

District 7

3136 Drainable Bases – DSB & OGAB

Crushing – 50% versus 85% Two Face

Same Spec as OGAB for:

- ▣ Virgin Aggregates
- ▣ LAR
- ▣ Insoluble Residue
- ▣ Spall

3138

3138 Aggregate for Base & Surface Courses

No Class 7

Three Tables:

< 25% Recycle,

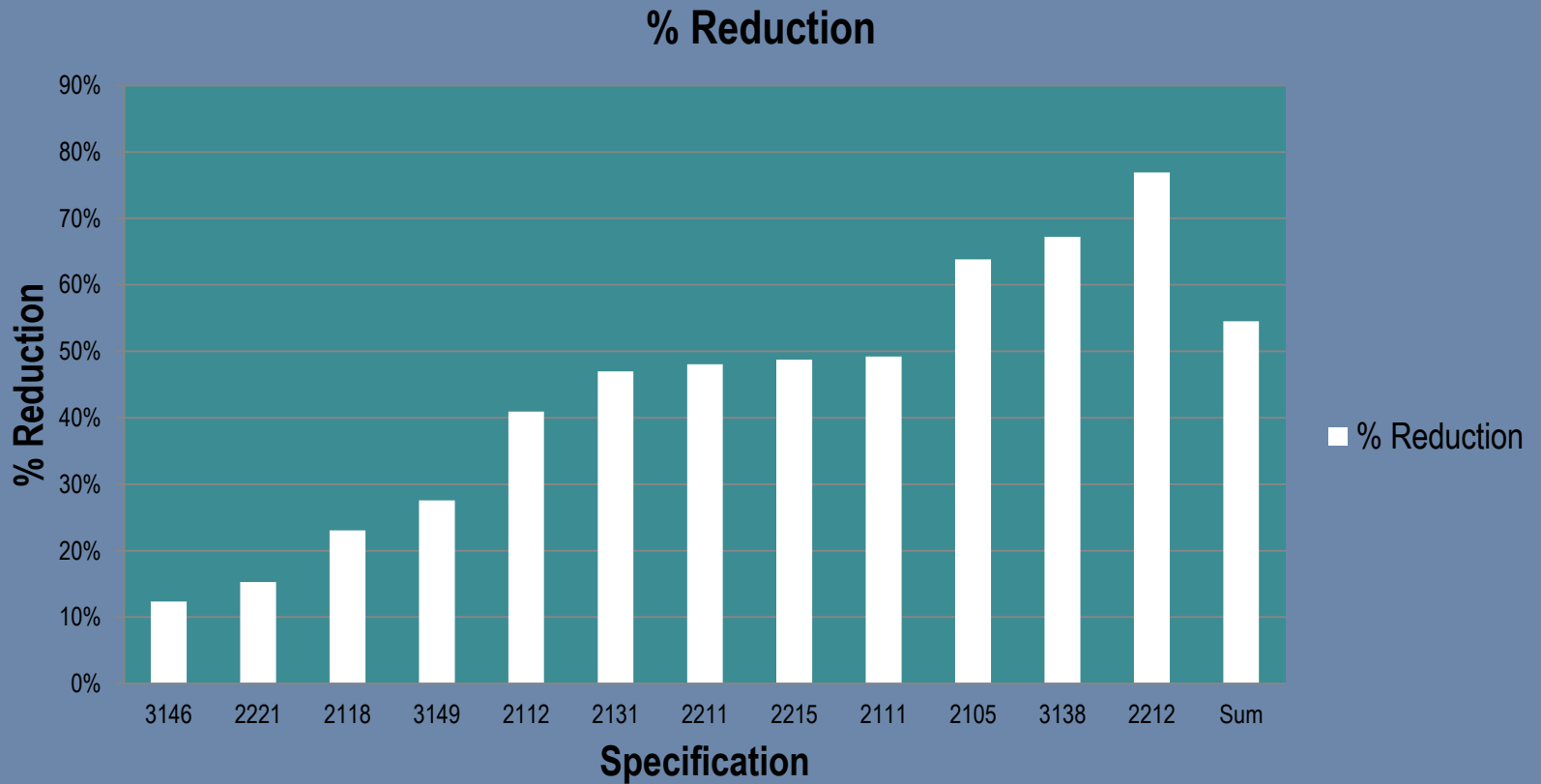
≥ 25% Recycle and

> 75% Concrete Recycle

Class 5 Q – Little larger top size

Sieve Size	Class 5	Class 5R
2 in	—	100
1 in	100	65 – 95
¾ in	90 – 100	45 – 85
¾ in	50 – 90	35 – 70
No. 4	35 – 80	15 – 45
No. 10	20 – 65	10 – 30
No. 40	10 – 35	5 – 25
No. 200	3.0–10.0	3.0–10.0

Specification Word Reduction



2012 Spec Changes

- 2105 Embankment and Excavation
 - Beneficial Use Determination (BUD) Rule 7035.2860
 - Bit in Road Core and above Road Core or in 3138 Products Only
 - Road Core Definition in newly revised Spec. 2105

The grey shaded area shows where the salvaged bituminous will be allowed with language change

1V to 1 H or 1V to 1.5 H
Depending on
Embankment Height

Grading PI

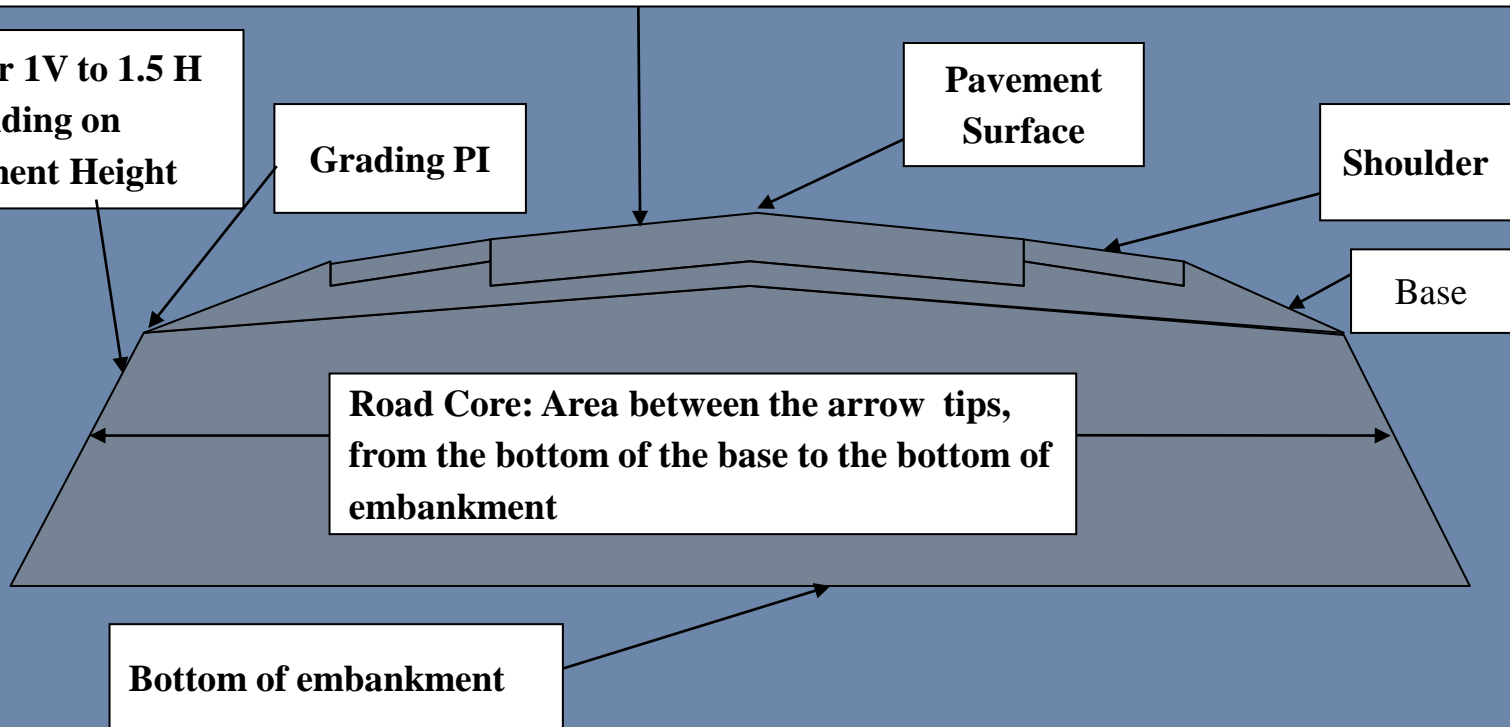
Pavement
Surface

Shoulder

Base

Road Core: Area between the arrow tips,
from the bottom of the base to the bottom of
embankment

Bottom of embankment



Monetary Adjustment Tables on Web

- Gradation and Quality Failures
- Currently, Gradation and Bit Failure Tables in 2211
- Existing Memos for OGAB & Granular Materials
- Will be on the Web
- **DOES NOT ALLOW DELIVERY OF FAILING MATERIALS!**

G & B Manual

Revised Sections

5-692.100.....Sampling

5-692.700.....Random Sampling

Control Charts

- 1. Only when required in the Proposal**
- 2. Plot the individual gradations**
- 3. Plot the moving average of 4 tests**

Contractor Sampling & Testing

Production Samples

Take blended samples from the stockpile

Certification requires:

Gradations, Crushing, Bit content & Quality tests

Roadway Samples

Sample immediately after placement begins

Test and report within 24 hours

Verification Sampling

Base (Drainable), Surfacing, Shouldering

- 1. All samples are randomly located**
- 2. Determine number tests required**
- 3. Assign a random number to each test**
- 4. Calculate the location using the random number and quantity represented by each test**

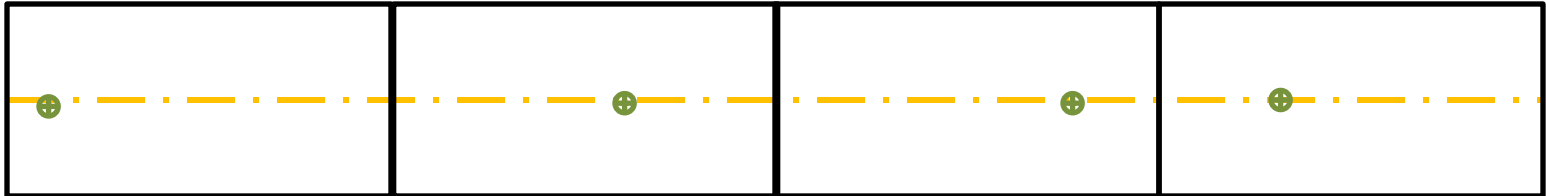
AFTER SPREADING



BEFORE COMPACTION

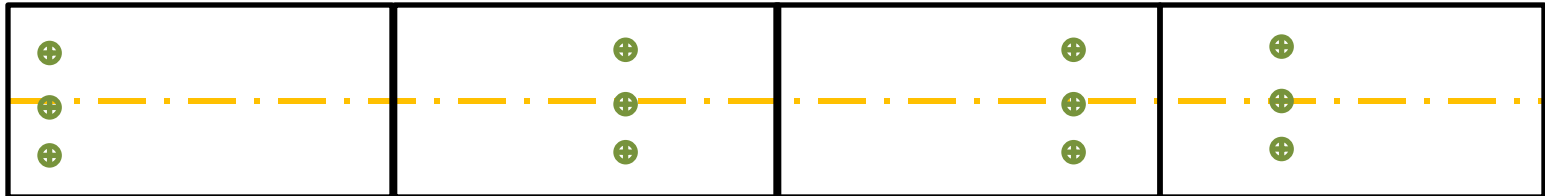
Removing Windrow Sampling
Linear or by Trucks Only

Four (4) Equal Sublots



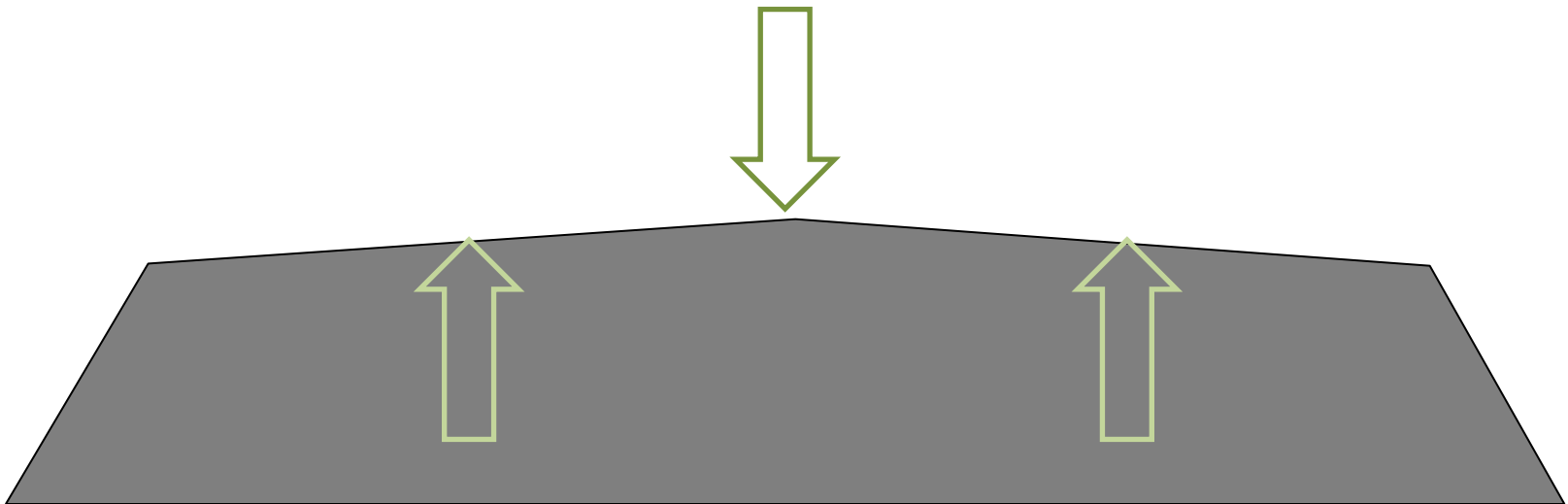
One (1) Random Number per Sublot

Four (4) Equal Sublots



One (1) Random Number per Sublot

Three (3) Collection Points per Sample





Documentation

1. **G&B-001** (TP 02115) Grading and Base Reports
2. **G&B-104** (24346) Certification of Aggregates
3. Random sample location computations
4. **G&B-101** (02402) Sieve Analysis
5. **G&B-002** (02154) Random Sampling Acceptance
6. Materials Certification Summary



Materials Control Schedule

- 1. Random Sampling – No More Single Tested Lots (3136 & 3138)**
- 2. Qualities – Two Samples, if first passes, 2nd not required.**



Random Sampling - Gradations

< 280 yd³ (CV):

No Tests Required

≥ 280 yd³ (CV) to < 1,100 yd³ (CV):

- 1.
2. Divide Lot into two equal sublots
3. Collect one random sample from each subplot.
4. Average results to determine compliance.

≥ 1,100 yd³ (CV) to < 5,500 yd³ (CV):

2. Divide Lot into four equal sublots
3. Collect one random sample from each subplot.
4. Average results to determine compliance.

≥ 5,500 yd³ (CV)

2. Round # Lots up to next whole number
3. _____
4. Divide each Lot into four equal sublots.
5. Collect one random sample from each subplot.
6. Average results for each Lot to determine compliance.

Increase to Plan Quantity - Random Sampling

Modify testing and sampling protocol for increases in Plan quantities as follows:

Time Plan Quantity Increased	Testing and Sampling
Before Collection of first sample.	Reorder sampling to account for additional quantity.
After Collection of first sample, but before sampling is complete.	Complete testing of current lot, and then reorder the sampling using the remaining quantity.
After collection of all original Plan quantity samples.	Order sampling for additional quantity.

Failing Materials

- 1. Stop delivery**
- 2. Correcting failures before they are covered**
- 3. Tables for Monetary Adjustment**











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