

Treasure Hill

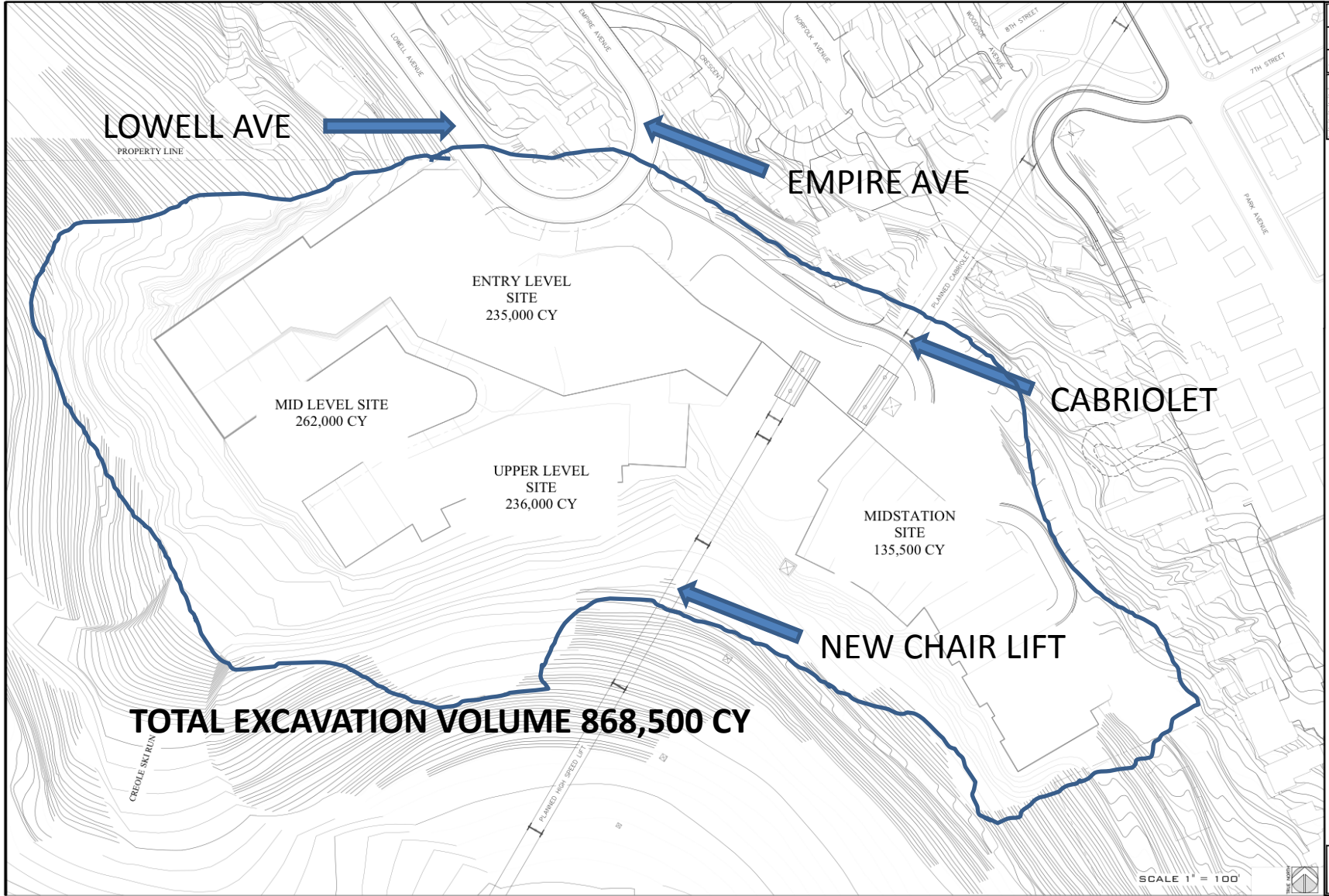
Construction Comments

Arnie Rusten, PE, SE

1058 Lowell Avenue

10/11/2017





| | |
|--------------|---------------|
| DATE: | JUNE 26, 2017 |
| PROJECT NO.: | 04-02-17 |
| FILE: | TREASURE |
| TREASURE | |
| REVISIONS | DATE |
| | |
| | |
| | |
| | |

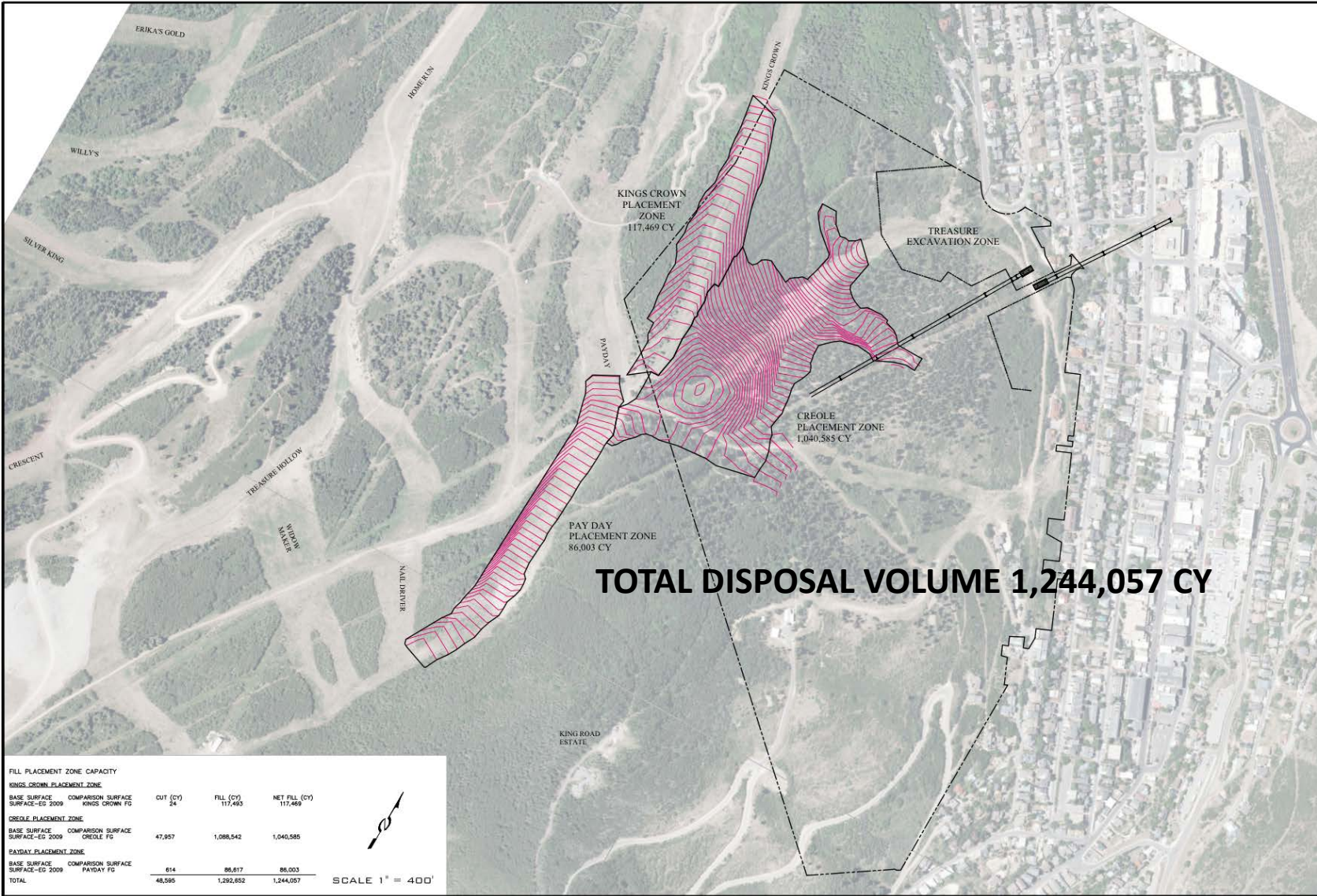


FOR: MPE, INC.

TREASURE
REFINEMENT 17.2
EXCAVATION VOLUMES

SHEET NO:
E 1.1

SCALE 1" = 100'



FILL PLACEMENT ZONE CAPACITY

| KINGS CROWN PLACEMENT ZONE | | | |
|----------------------------|--------------------|----------|-----------|
| BASE SURFACE | COMPARISON SURFACE | CUT (CY) | FILL (CY) |
| SURFACE-EG 2009 | KINGS CROWN FG | 24 | 117,469 |
| NET FILL (CY) 117,469 | | | |
| CREOLE PLACEMENT ZONE | | | |
| BASE SURFACE | COMPARISON SURFACE | CUT (CY) | FILL (CY) |
| SURFACE-EG 2009 | CREOLE FG | 47,957 | 1,088,542 |
| NET FILL (CY) 1,040,585 | | | |
| PAYDAY PLACEMENT ZONE | | | |
| BASE SURFACE | COMPARISON SURFACE | CUT (CY) | FILL (CY) |
| SURFACE-EG 2009 | PAYDAY FG | 614 | 86,617 |
| NET FILL (CY) 86,003 | | | |
| TOTAL | | 48,595 | 1,244,057 |

SCALE 1" = 400'

DATE: JUNE 14, 2017
 PROJECT NO.: 04-16-02
 FILE: TREASURE

| REVISIONS | DATE |
|-----------|------|
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| | |
| | |

ALTA ENGINEERING INC.
 11000 E. 82nd Ave., Suite 100, Indianapolis, IN 46240
 TEL: 317.838.1444 FAX: 317.838.1445

FOR: MPE IND.

TREASURE
 REFINEMENT 17,1
 MATERIAL PLACEMENT ZONES

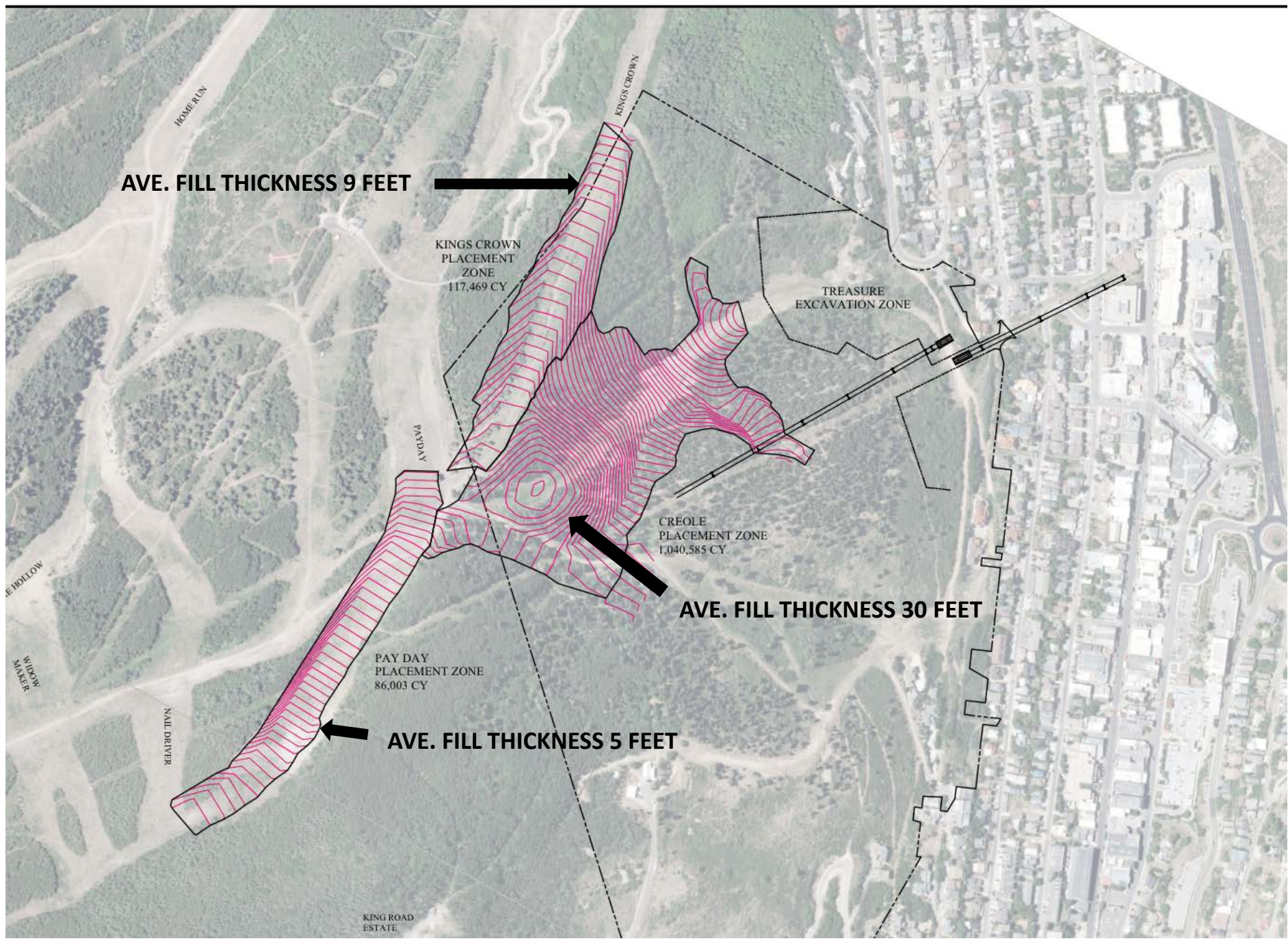
SHEET NO: E2.0

Source: www.EngineeringToolBox.com

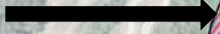
| Material | <u>Density</u> at the Borrow 10 ³ (kg/m ³) | Bulking (Swell) Factor (%) |
|--------------------|---|-------------------------------|
| Basalt | 2.4 - 3.1 | 75 - 80 |
| Clay | 1.8 - 2.6 | 20 - 40 |
| Dolomite | 2.8 | 50 - 60 |
| Earth | | 20 - 30 |
| Gneiss | 2.69 | 75 - 80 |
| Granite | 2.6 - 2.8 | 75 - 80 |
| Gravel, dry | 1.80 | 20 - 30 |
| Gravel, wet | 2.00 | 20 - 30 |
| Gravel, wet w/clay | | 50 - 60 |
| Limestone | 2.7 - 2.8 | 75 - 80 |
| Loam | | 15 - 25 |
| Quartz | 2.65 | 75 - 80 |
| Rock | | 40 - 80 |
| Sand, dry | 1.60 | 20 - 30 |
| Sand, wet | 1.95 | 20 - 30 |
| Sandstone | 2.1 - 2.4 | 75 - 80 |
| Slate | 2.6 - 3.3 | 85 - 90 |
| Soil | 1.2 - 1.6 | 20 - 30 |

Excerpt from the WSDOT Geotechnical Design Manual, Chapter 10.4, Use of Excavated Materials
 October 2013

| Material | In situ wet unit weight (pcf) | Percent Swell | Loose Condition wet unit weight (pcf) | Percent Shrink (-) or Swell (+) | Compacted wet unit weight (pcf) |
|---------------------|-------------------------------|---------------|---------------------------------------|---------------------------------|---------------------------------|
| Sand | 114 | 5 | 109 | -11 | 129 |
| Sandy Gravel | 131 | 5 | 124 | -7 | 141 |
| Silt | 107 | 35 | 79 | -17 | 129 |
| Loess | 91 | 35 | 67 | -25 | 120 |
| Rock/Earth Mixtures | | | | | |
| 75% R/25 % E | 153 | 25 | 122 | +12 | 136 |
| 50% R/50% E | 139 | 29 | 108 | -5 | 146 |
| 25% R/75% E | 125 | 26 | 99 | -8 | 136 |
| Granite | 168 | 72 | 98 | +28 | 131 |
| Limestone | 162 | 63 | 100 | +31 | 124 |
| Sandstone | 151 | 61 | 94 | +29 | 117 |
| Shale-Siliceous | 165 | 40 | 118 | +25 | 132 |
| Siltstone | 139 | 45 | 96 | +9 | 127 |



AVE. FILL THICKNESS 9 FEET



KINGS CROWN
PLACEMENT
ZONE
117,469 CY

TREASURE
EXCAVATION
ZONE

CREOLE
PLACEMENT
ZONE
1,040,585 CY

AVE. FILL THICKNESS 30 FEET

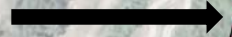
PAY DAY
PLACEMENT
ZONE
86,003 CY

AVE. FILL THICKNESS 5 FEET

KING ROAD
ESTATE

HOMERUN

AVE. FILL THICKNESS 9 FEET



KINGS CROWN
PLACEMENT
ZONE
117,469 CY

KINGS CROWN

TREASURE
EXCAVATION ZONE

CREOLE SKI RUN

CREOLE
PLACEMENT ZONE
1,040,585 CY

AVE. FILL THICKNESS 30 FEET

PAYDAY

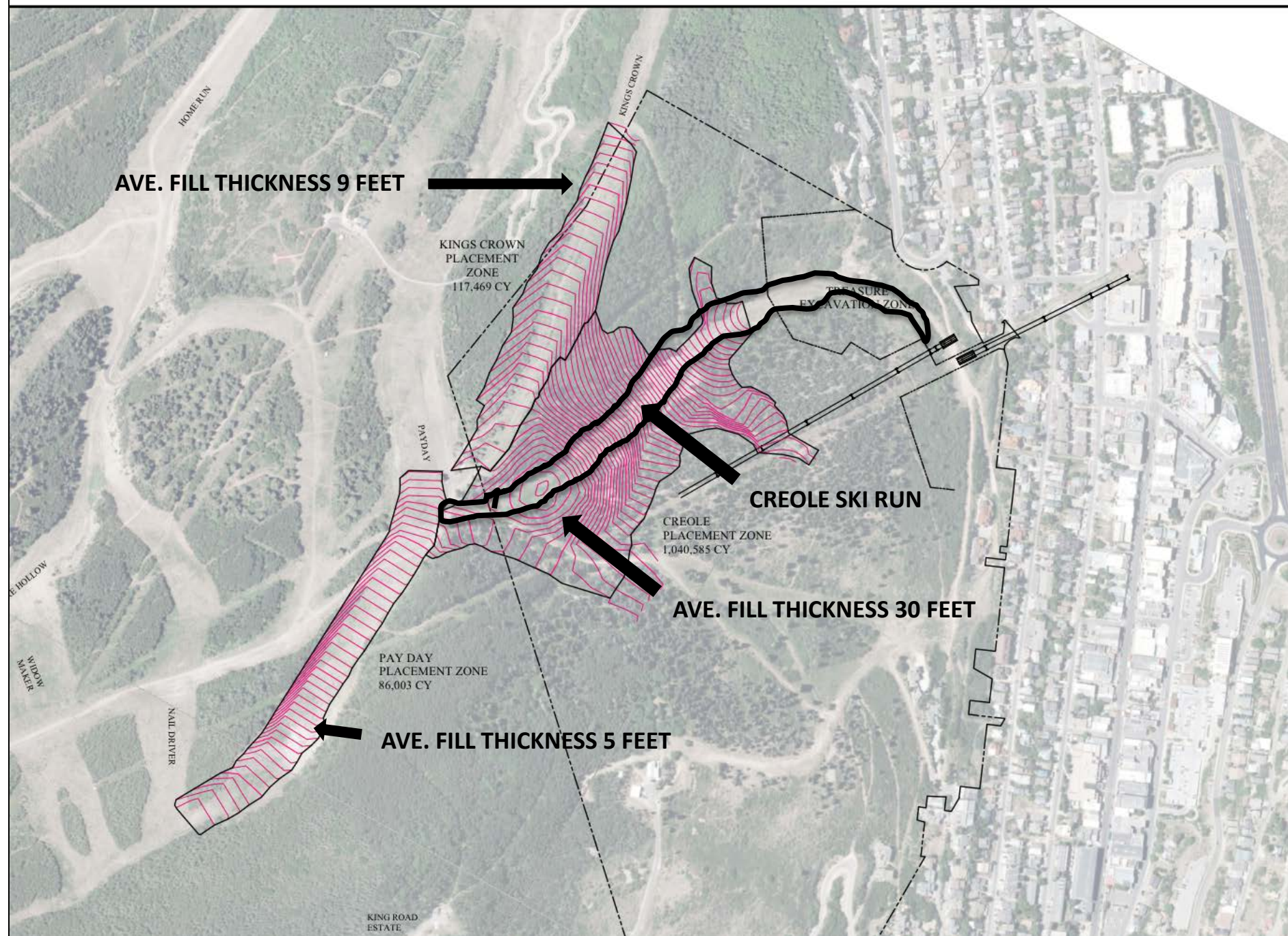
PAY DAY
PLACEMENT ZONE
86,003 CY

AVE. FILL THICKNESS 5 FEET

WIDOW
MAKER

NAIL DRIVER

KING ROAD
ESTATE





CREOLE SKI RUN LOOKING DOWN



CREOLE SKI RUN HALF WAY DOWN



CREOLE SKI RUN LOOKING UP



CREOLE SKI RUN

25 SEPTEMBER 2017

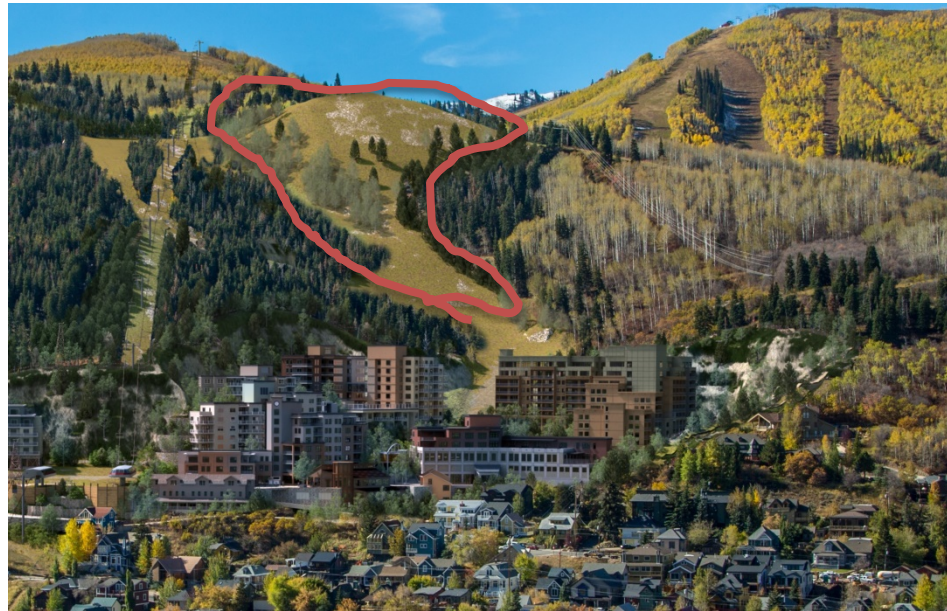




PROPOSED CREOLE PLACEMENT ZONE



EXISTING LANDSCAPE



FUTURE LANDSCAPE









8 AUGUST 2017



LOWELL AVENUE
2 AUGUST 2017



LOWELL AVENUE

26 SEPTEMBER 2017



LOWELL AVENUE

26 SEPTEMBER 2017



LOWELL AVENUE

26 SEPTEMBER 2017



LOWELL AVENUE

9 SEPTEMBER 2017



LOWELL AVENUE

7 AUGUST 2017

Thank You