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# Draft
# Response Action Plan
# Parcel E, Washington Avenue South
# Minneapolis, Minnesota

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March 2005

*Project Number 82713.02*

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**Appendix**

A Material Quantity Calculations

- Response Action Plan and Construction Contingency Plant, Proposed Guthrie Parking Ramp Site (Parcel E), Second Street South and Future 9th Avenue South, Minneapolis, Minnesota, MPCA VIC Project No. VP17760, prepared April 7, 2004, by Braun Intertec.

- Response Action Plan Implementation Report, Guthrie Parking Ramp Site (Parcel E), Second Street South and Future 9th Avenue South, Minneapolis, Minnesota, MPCA VIC Project No. VP17760, prepared September 2, 2004, by Braun Intertec.

- Dredge Fill Sampling Report, Guthrie Parking Ramp Site (Parcel E), Second Street South and Future Ninth Avenue South, Minneapolis, Minnesota, MPCA VIC Project No. VP17760, prepared February 9, 2005, by Braun Intertec.

- Additional Investigation Report, Parcel E, Washington Avenue South, Minneapolis, Minnesota, prepared February 2005, by Earth Tech, Inc.

***Summary of Previous Investigations***

Based on the previous investigations, limited polycyclic aromatic hydrocarbon (PAH) and metals contamination was identified on the Property and where the parking ramp is located. Fill consisting of surficial sand underlain by ash fill (Clinker Layer) was apparently continuous across the Property and parking ramp area, and resulted from historical use of the areas as a rail yard. Some debris, including former building foundations, was also encountered in portions of the parking ramp area. Contamination within the parking ramp area was removed as part of the excavation for construction. The parking ramp fill (Dredge Fill) restored construction slopes to grade around the perimeter of the ramp.

Samples from a boring conducted during a previous investigation of the Proposed Chicago Avenue South location had an Arsenic result (32.9 mg/kg) above the MPCA Tier 2 Industrial/Commercial Soil Reference Value (SRV) (25 mg/kg) at 2 to 6 feet, and a benzo(a)pyrene (BaP) equivalents result (15.9 mg/kg calculated) above the Tier 2 Industrial/Commercial SRV (4 mg/kg calculated). A second location had an Antimony result (27.9 mg/kg) above the Tier 2 Residential SRV (14 mg/kg), but below the Tier 2 Industrial/Commercial SRV (100 mg/kg). Additional samples collected near these locations to define the extent of this contamination indicated that the contamination was isolated to relatively small areas. The lead result (2,420 mg/kg) and mercury result (1.03 mg/kg) from a third sample collected from the southeast corner of the Property exceeded the Tier 2 Industrial/Commercial SRVs (700 and 0.7 mg/kg).

Results of the dredge fill characterization indicated that one sample (2.243 mg/kg calculated) of fill on the north side of the parking structure exceeded the MPCA Tier 2 Residential SRV for benzo(a)pyrene (BaP) equivalents (2 mg/kg calculated), but was less than the Tier 2 Industrial SRV (4 mg/kg calculated) and Tier 1 Soil Leaching Value (SLV) (10.2 mg/kg calculated). Based on this, the fill is suitable for current use at the Property, but if excavated and removed from the Property will be restricted from residential use.

the Response Action (RA) is to manage the excavated material in accordance with regulatory requirements protecting human health and the environment while limiting the amount of material requiring off-site disposal, and in turn, the cost.

Excavation for the liner underground parking will result in a significant amount of material to be removed from the Property. Figures 3, 4, and 5 present an excavation concept based on available information. The excavation concept was used to derive material quantities to be removed or restored during future construction of the roads and liner. The concept assumes the excavation for the storm water trench will be sloped. The following table presents the volume estimates. Calculations used for the estimates are presented in Appendix A. The estimates have been adjusted from the corresponding table presented in the February 2005 Additional Investigation Report based on new information available.

| **Road Excavation Volumes** | **Cubic Yards** |
|---|---|
| *Chicago Avenue* | |
| Chicago Avenue Trench Excavation Volume (sloped) | 17,200 |
| Ash Fill (Clinker Layer) within Chicago Avenue Excavation | 2,800 |
| Storm Water Trench Volume | 740 |
| Adjustment for New Grade | 5,600 |
| Impacted Soil Around GP-13 and GP-14 (10 foot radius, 7 feet deep above trench) | 160 |
| Concrete Around TP-121 and TP-122 to be sent Off-Site | 90 |
| Clean Material to be Sent Off-Site (Trench + Adjustment + Impacted Volume. Exchange with Clean) | 6,600 |
| Replace On-Site | 10,500 |
| *9th Avenue* | |
| Total 9th Avenue Excavation Volume (Cut/Fill Balance) | 0 |
| Ash Fill (Clinker Layer) | 700 |
| Volume of Dredge Fill that overlaps with 9th Avenue | 1,800 |
| Clean Material to be Sent Off-Site (If Ash to Chicago Avenue) | 0 |
| **Liner Excavation Volumes** | **Cubic Yards** |
| Liner Excavation Volume | 42,600 |
| Ash Fill (Clinker Layer) within Liner Excavation | 1,700 |
| Impacted Soil Around B-19 (10 foot radius from B-19, 5 feet deep) | 60 |
| Impacted Soil Around GP-20 (2 feet deep, removed with Ash) | NA |
| Volume of Dredge Fill that overlaps with Liner Excavation Volume | 7,700 |
| Ash Fill and Impacted to be Sent Off-Site (If Can't be Used On-Site) | 1,800 |
| Clean Material to be Sent Off-Site | 38,000 |

Material will be excavated for installation of the storm water trench and segregated based on characteristics and anticipated use. Based on the size of the sloped excavation, it is possible to replace Ash Fill and impacted soil near GP-13 and GP-14 in the excavation backfill so that it is not immediately adjacent to the storm water trench or the surface. Concrete slabs will be separated and sent off-site for disposal at a demolition landfill or crushed and reused. The balance of excavated material, that is expected to be clean (below Tier 2 residential SRVs) and

## 2.0 RESPONSE ACTION PLAN IMPLEMENTATION AND CONTINGENCY

The excavation of the various areas will be observed by Earth Tech on behalf of Hennepin County to help characterize the excavated materials and direct their disposition and placement based on this RAP. The Ash Fill is a relatively distinguishable layer that will be separated. The known areas of impacted soil, concrete, and Dredge Fill will be staked and managed according to the previous section following excavation. As the excavation proceeds, the material removed will be observed for additional debris or signs of contamination, such as staining or odors. In general, clean soil, concrete, and previously characterized materials to be sent off-site will be excavated and directly loaded for off-site transport. Ash Fill from Chicago and 9$^{th}$ Avenues will be stockpiled and covered for placement back in the storm trench excavation. Soil excavated from near the former B-19 location will be stockpiled and sampled for toxicity characterization leaching procedure (TCLP) lead in order to determine the appropriate means of disposal for that material.

If other potentially contaminated soil is observed based on staining or odors, it will be stockpiled for characterization in order to make a decision about how it will be managed. A composite sample will be collected for each 500 cubic yards of potentially contaminated soil and analyzed for total Resource Conservation and Recovery Act (RCRA) metals, antimony, and PAHs. If any of the RCRA metals total result exceeds 20 times its TCLP standard, it will be analyzed using the TCLP.

If additional debris is encountered that exceeds size restrictions, it will be separated and disposed off-site. Based on previous investigations, significant amounts of mixed soil and debris are not expected. Debris encountered has been relatively large and can be separated. If relatively small volumes of mixed soil and debris that do not warrant separation are encountered, they will be disposed off-site. However, if a significant volume of mixed soil and debris is encountered, the material will be stockpiled and potential mechanisms for separation will be evaluated.

### *Staging and Stockpiling*

Wherever stockpiling of potentially contaminated material must occur over a clean backfilled area, that area will first be covered with a layer of plastic to minimize cross-contamination. Stockpiles will be covered with plastic sheeting to prevent precipitation from contacting the soils and to control dust. The plastic sheeting will be anchored using an appropriate weighted object. To secure the area and to prevent injuries, temporary fencing will be placed around the stockpiles and excavations, unless the existing fencing is still in place and provides adequate safeguard/security.

### *Confirmation Sampling*

In general, the extent of the known areas of impacted soil within the Chicago Avenue excavation are relatively well characterized. Within the liner excavation, nearly all of the footprint will be excavated. Therefore, confirmation sampling will not be conducted unless new contaminated soil is encountered at the base of the Chicago Avenue excavation. Upon completion of the excavation of the new contaminated soils, samples will be collected from the base and sidewalls

### *Hazardous Waste Contingency Procedures*

If the soil stockpile samples indicate that the soil is hazardous waste due to the toxicity characteristic, then the waste must be either disposed of in a Subtitle C (hazardous waste) landfill or treated to stabilize the waste prior to disposal in a Subtitle D (non-hazardous waste) landfill. Since the most likely reason for the waste to be hazardous by toxicity characteristic is high lead content, the most cost effective solution is to stabilize the waste by adding phosphates and other substances using either of the methods described below.

- The soil can be stabilized by mixing with powdered phosphates at the Site in a pugmill-type mixing device prior to hauling the treated soil to the landfill as special waste. The advantage of this method is that the soil does not have to be manifested, shipped, or disposed of as a hazardous waste. The disadvantage is that the soil mixing must be done on-site where there is limited room for the apparatus.

- The soil can be hauled to the landfill site as a hazardous waste and stabilized by mixing with powdered phosphates in a permanent stabilization facility at the landfill prior to disposal. The advantage of this method is that the disposal facility already has an operating stabilization facility so one does not need to be temporarily setup at the Site. The disadvantage is that the waste must be manifested and hauled to the landfill as a hazardous waste.

The method above that is employed is primarily dependent on the volume of soil requiring stabilization. If the volume is relatively small, it is not cost effective to mobilize the equipment necessary for stabilization on-site. As the volume requiring stabilization increases, it becomes more cost effective to stabilize the soil on-site and dispose of it at the less expensive non-hazardous rate.

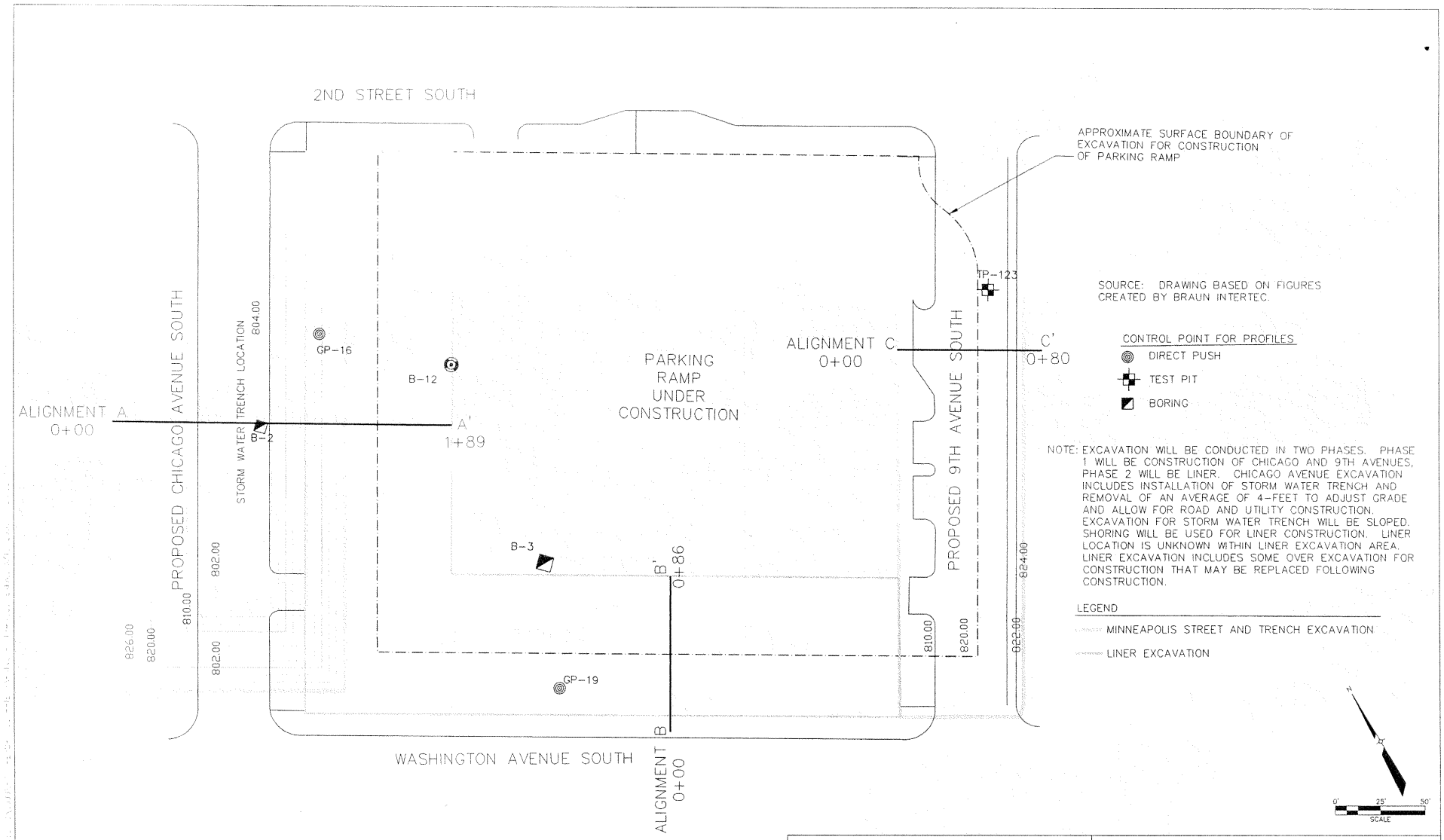
### *Survey Control*

Reporting the results of the Response Action will require accurately locating the excavations and samples at the Site. Existing maps of the Site taken from past investigations were used to prepare maps that locate the work performed; however, a complete topographic survey of the Site has not been completed. We anticipate continuing to use the existing site maps to document activities described in this RAP. A site temporary benchmark will be used for vertical control and site features such as building corners will be used for horizontal control. The existing map will be used as a base map for various maps that will be included in the Response Action Implementation Report showing the location of the work performed during the Response Action.

- Waste manifests.
- Confirmation sampling results (if collected).
- Deviations from the RAP.

The Implementation Report will provide the basis for the request for No Further Action for soil.

# FIGURES




NOTE: EXCAVATION WILL BE CONDUCTED IN TWO PHASES. PHASE 1 WILL BE CONSTRUCTION OF CHICAGO AND 9TH AVENUES, PHASE 2 WILL BE LINER. CHICAGO AVENUE EXCAVATION INCLUDES INSTALLATION OF STORM WATER TRENCH AND REMOVAL OF AN AVERAGE OF 4-FEET TO ADJUST GRADE AND ALLOW FOR ROAD AND UTILITY CONSTRUCTION. EXCAVATION FOR STORM WATER TRENCH WILL BE SLOPED. SHORING WILL BE USED FOR LINER CONSTRUCTION. LINER LOCATION IS UNKNOWN WITHIN LINER EXCAVATION AREA. LINER EXCAVATION INCLUDES SOME OVER EXCAVATION FOR CONSTRUCTION THAT MAY BE REPLACED FOLLOWING CONSTRUCTION.

LEGEND

MINNEAPOLIS STREET AND TRENCH EXCAVATION

LINER EXCAVATION

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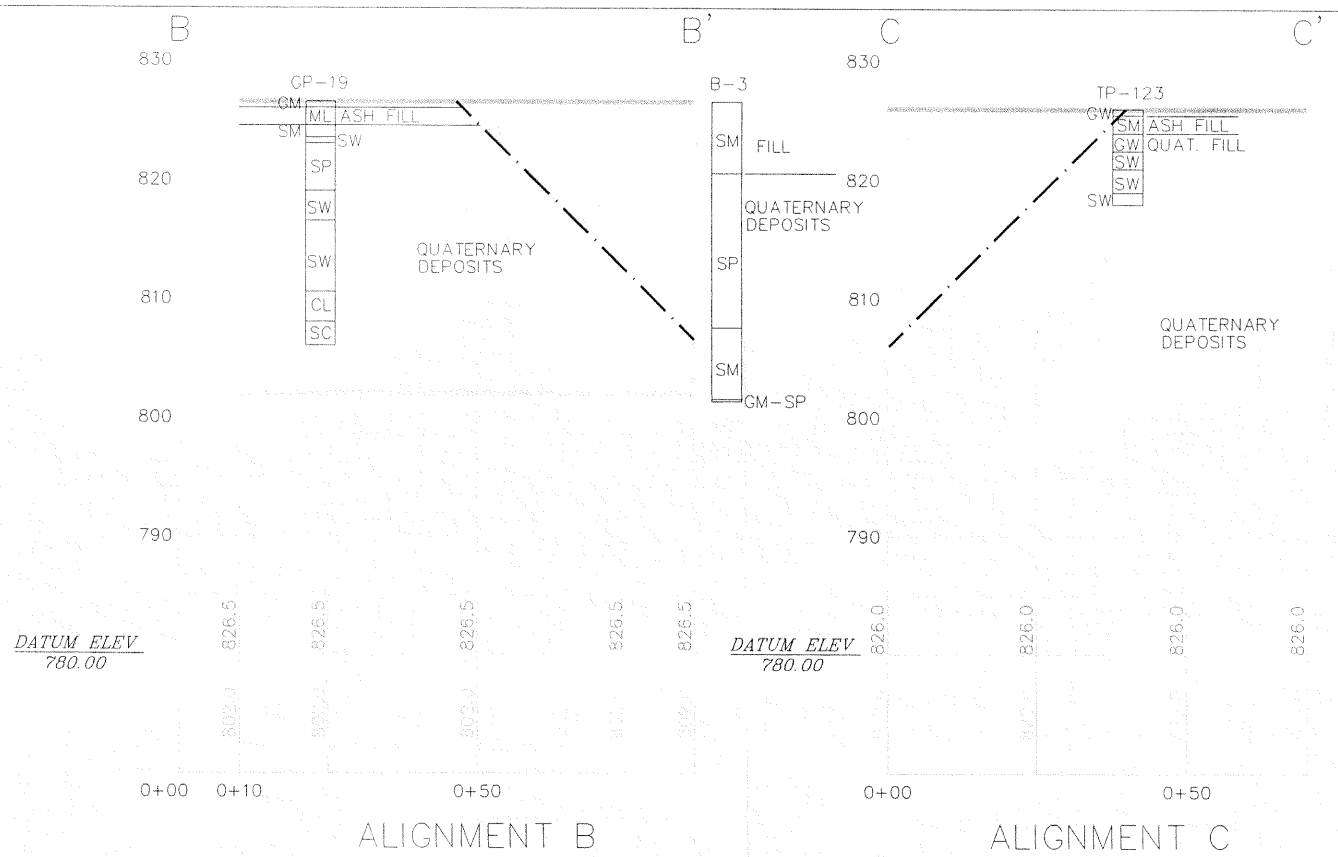
FIGURE 3
EXCAVATION CONCEPT

PARCEL E
HENNEPIN COUNTY, MINNESOTA

MAR. 2005

82713




LEGEND

- ASSUMED EXISTING GROUND PROFILE
- LINER EXCAVATION
- MINNEAPOLIS STREET AND TRENCH EXCAVATION
- APPROXIMATE PARKING RAMP FILL BOUNDARY
- 827.0 EXISTING GROUND SPOT ELEVATIONS
- MINNEAPOLIS STREET EXCAVATION SPOT ELEVATIONS
- LINER EXCAVATION SPOT ELEVATIONS

HORIZ. 0' 10' 20'
VERT. 0' 5 10'
SCALE

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FIGURE 5
EXCAVATION CONCEPT
SUBSURFACE PROFILES B & C
PARCEL E
HENNEPIN COUNTY, MINNESOTA

FEB. 2005

82713

EARTH TECH

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**CALCULATION SHEET**

PAGE 1 OF 2

PROJECT NO. 82713

CLIENT Hennepin County

PROJECT Parcel E

SUBJECT Material Quantity Estimates

Prepared By CT Date 2/16/05

Reviewed By _____ Date _____

Approved By _____ Date _____

Road Excavation - Chicago Avenue

Total of sloped on 4 sides - based on CADD model 17,223 cy

OR

Rectangular Frustum

$V = \frac{1}{3} h (B + b + \sqrt{Bb})$

$= \frac{1}{3} 25 [(122 \times 310) + (23 \times 193) + \sqrt{122 \times 310 \times 23 \times 193}]$

$= 17,042$ cy

Water Trench

$V = L \times w \times H$

$= 184 \times 15 \times 12$

$= 736$ cy ⟶ clean fill off site

Ash [illegible] layer $V = 122 \times 310 \times 2 = 2801$ cy (75,600 cf)

could be consolidated in 2 20×10×200 areas

Adjust [illegible] Grade - 4' over area

$V = 122 \times 310 \times 4 = 5602$ cy ⟶ take this amount of clean fill off site consolidate Ash in this space

[illegible] 13 [illegible] $10^2 \pi \times 7 = 81$ cy, also GP-14 (above trench)

[illegible] TP-121 and TP-122

Assume each is 40' x 40' x 9 inches

$V = 2 \times 40 \times 40 \times .75$

$V = 89$ cy ⟶ off-site

[illegible] 736 clean off site - 5602 clean off site - 100 concrete

= 10,600 cy replaced

[illegible] 736 + 5602 + 160 = [illegible]

[illegible] = 100 cy