

Matthew G. Bevin Governor

December 10, 2015

CALL NO. 303 CONTRACT ID NO. 151284 ADDENDUM # 2

Subject: Harlan County, FD04 048 0038 010-011 Letting December 11, 2015

(1) Added - Geotechnical Sheets

Proposal revisions are available at <a href="http://transportation.ky.gov/Construction-Procurement/">http://transportation.ky.gov/Construction-Procurement/</a>.

Plan revisions are available at <a href="http://www.lynnimaging.com/kytransportation/">http://www.lynnimaging.com/kytransportation/</a>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

Kachel Mille

Rachel Mills, P.E. Director Division of Construction Procurement

RM:ks Enclosures



### AASHTO Classification of Soils and Soil-Aggregate Mixtures

General Classification (3)				Granular Materials 5% or less passing 0.075 mm)				Silt-Clay Materials (More than 35% passing 0.075 mm)			
Group Classification	A-1			A-2							A-7
	A-1-a	A-1-b	A-3	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7-5 A-7-6
Sieve Analysis, Percent Passing 2.00 mm (No. 10) 0.425 mm (No. 40) 0.075 mm (No. 200)	50 max 30 max 15 max	 50 max 25 max	 51 min 10 max	  35 max	  35 max	  35 max	  35 max	  36 min	  36 min	  36 min	  36 min
Characteristics of Fraction Passing 0.425 mm (No. 40) Liquid Limit Plasticity Index	 6 r	nax	 N.P.	40 max 10 max	41 min 10 max	40 max 11 min	41 min 11 min	40 max 10 max	41 min 10 max	40 max 11 min	41 min 11 min

#### Unified Soil Classifications

	MAJOR DI	VISIONS	SY	MBOL	NAME
			GW		Well-graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL AND	GP		Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELLY SOILS	GM		Silty gravels,gravel-sand-silt mixtures.
ILE NAME:	COARSE		GC		Clayey gravels,gravel-sand-clay mixtures.
	GRAINED SOILS		SW		Well graded sands or gravelly sands, little or no fines.
		SAND AND	SP		Poorly graded sands or gravelly sands, little or no fines.
		SANDY SOILS	SM		Silty sands, sand-silt mixtures.
			SC		Clayey sands,sand-clay mixtures.
- DATE		SILTS	ML		Inorganic silts and very fine sands,rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
		AND CLAYS LL IS LESS	CL		Inorganic clays of low to medium plasticity, gravelly clays,sandy clays silty clays, lean clays.
SHEET NAME:	FINE GRAINED SOILS	THAN 50	ML-CL		Silty clay-silty clay with sand and or gravel, sandy silty clay, sandy silty clay with gravel, gravelly silty clay, gravelly silty clay with sand
- - 		SILTS AND CLAYS	МН		Inorganic silts,micaceous or diatomaceous fine sandy or silty soils,elastic silts.
v 8.11.9.4		LL IS GREATER THAN 50	СН		Inorganic clays of high plasticity, fat clays.
roStation	L		1		

# GEOTECHNICAL SYMBOLS

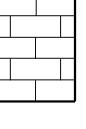
AI	Activity Index
LI	Liquidity Index
S+C	Silt + Clay (% finer than No.200 Sieve)
$\bigcirc$	Rockline Soundings
$\bullet$	Disturbed Sample Boring
$\bigcirc$	Undisturbed Sample Boring
$\textcircled{\bullet}$	Undisturbed Sample Boring & Rock Core
$\bullet$	Rock Core
-(_)-	Slope Inclinometer Installation
	typical applications:
OW	Observation Well
<b>→</b>	Approximate Footing Elevation
_▼ (Date)	Water Elevation

### Unified Soil Classifications - Continued

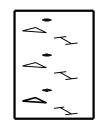
MAJOR DI	VISIONS	SYN	IBOL	NAME
		GP-GC		Poorly graded gravel with clay (or silty clay poorly graded gravel with clay and sand (or silty clay & sand)
	GRAVEL	GP-GM		Poorly graded gravel with silt, poorly graded gravel with silt and sand
	AND GRAVELLY SOILS	GW-GC		Well graded gravel with clay (or silty clay), well graded gravel with clay and sand (or silty clay and sand)
		GW-GM		Well graded gravel with silt, well graded gravel with silt and sand
COARSE GRAINED SOILS		GC-GM		Silty clayey gravel, silty clayey gravel with sand
	SAND AND SANDY SOILS	SW-SC		Well graded sand with clay (or silty clay), well graded sand with clay and gravel (or silty clay & gravel)
		SP-SC		Poorly graded sand with clay (or silty clay), poorly graded sand with clay and gravel (or silty clay and gravel)
		SP-SM	+ + +	Poorly graded sand with silt, poorly graded sand with silt and gravel
		SC-SM		Silty clayey sand, silty clayey sand with gravel
		SW-SM		Well graded sand with silt, well graded sand with silt and gravel
UNCLAS	SSIFIED	ОН		Organic (High Plasticity)
ΜΑΤΕ	FIAL	OL		Organic (Low Plasticity)

ITEM NO.

VS (psf)	Field Vane Shear Strength
	Thin-walled Tube Sample
<	Standard Penetration Test Sample
Ν	Penetration Resistance
Qu (psf)	Unconfined Compressive Strength
UU (psf)	Unconsolidated Undrained Triaxial Strength
w%	Moisture Content
KY RQD	Rock Quality Designation (Kentucky Method)
STD RQD	Rock Quality Designation (Standard Method)
SDI(JS)	Slake Durability Index (Jar Slake Test)
REC	Core Recovery
Ø	Angle of Internal Friction (Total Stress)
Ø	Angle of Internal Friction (Effective Stress)
c (psf)	Cohesion (Total Stress)
c (psf)	Cohesion (Effective Stress)
お (pcf)	Total Unit Weight
RDZ	Rock Disintegration Zone
OB	Overburden Bench
IB	Intermediate Bench
R	Refusal
NR	Refusal Not Encountered



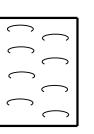
LIMESTONE



TALUS, MINE WASTE, FILL MATERIAL, BOULDERS, & ETC.

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SANDSTONE



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DURABLE SHALE  $(SDI \ge 95)$ 

NONDURABLE SHALE

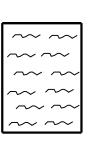
(SDI < 95)

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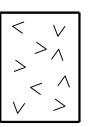
DOLOMITE

COAL

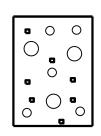
LIMESTONE (ARGILLACEOUS)



GRANULAR EMBANKMENT



STRUCTURE GRANULAR BACKFILL



SLOPE PROTECTION

GEOTECHNICAL SYMBOL SHEET

	1.) In accordance with Section 206 of the current Standard embankment material shall not vary from the optimum moisture current version of KM 64-511 by more than +2 percent or less content requirement shall have equal weight with the density r the acceptability of embankment construction. Refer to the moisture/density correlation.
	2.) All soils, whether from roadway or borrow, may require ma moisture content prior to compaction. Direct payment shall no hauling, stockpiling, and/or manipulating soils.
	3.) Excavation of surface ditches and channel changes adjace performed prior to the placement of the adjacent embankmen the channel changes and surface ditches is suitable for embar proper moisture content in accordance with Section 206 of th
	4.) The Contractor is responsible for conducting any operati areas to the required typical section. These operations shall Excavation or Embankment-in-Place and no additional compensat
NAME.	5.) The Contractor shall conduct grading operations in such of from roadway excavation be stockpiled separately or otherwi quantities are available for those areas requiring said materi allowed for such necessary manipulating as stockpiling, hauling
FILE	6.) Some of the soil horizons and slopes on the project are procedures in accordance with Sections 212 and 213 of the cur shall be followed on construction.
	7.) Removal of existing structures and other obstructions sh Section 203 of the current Standard Specifications for Road
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## GEOTECHNICAL NOTES

d Specifications, the moisture content of re content as determined by the ss than -2 percent. This moisture requirement when determining e Family of Curves for

manipulation to obtain proper not be permitted for rehandling,

cent to embankment areas shall be ents. The material excavated for pankment construction if dried to the current Standard Specifications.

ations necessary to excavate the cut all be incidental to Roadway ation shall be made for this work.

a manner that durable sandstone wise manipulated so that ample erial. No direct payment will be ng and/or double handling the material.

e subject to erosion. Necessary current Standard Specifications

shall be completed in accordance with d and Bridge Construction. 8.) Perforated pipe for subgrade drainage Standard Drawing RDP-005 at the following by the Engineer.

Mainline Station 11+43

9.) Foundation embankment benches shall b RGX-010 at the locations listed below and/o

Mainline Station 2+75 to 4+25, Left Side

10.) Construct a 2-foot rock roadbed const the entire project. The roadbed shall extend ditchline in the cuts. Where soft and/or thickness of the rock roadbed may need subgrade stabilization. These adjustments, seasonal fluctuations in the water table.

11.) In areas where pavement is not to be distance less than three feet below the p roadway embankments, shall be removed ent section. This shall be performed in complian Specifications for Road and Bridge Constru

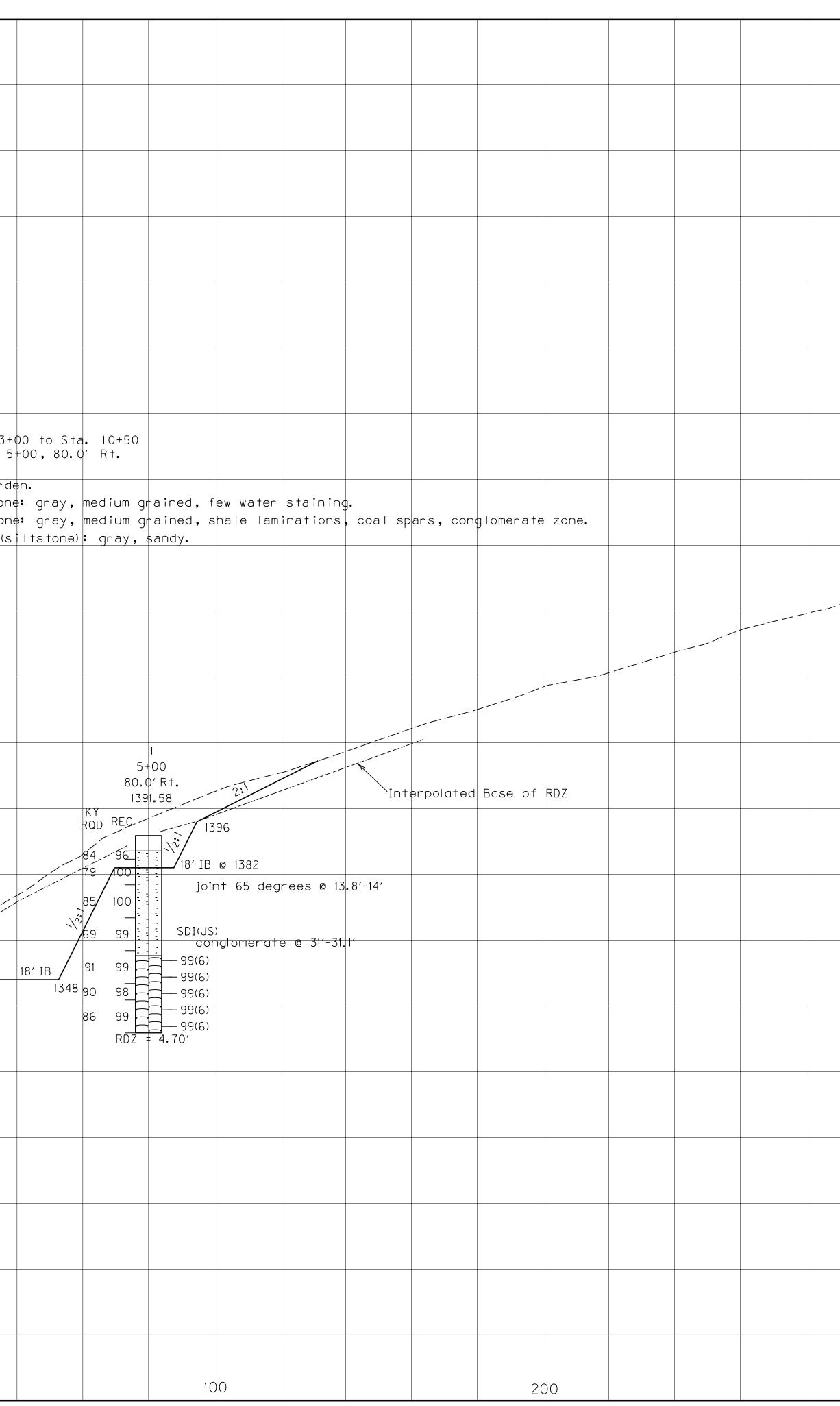
12.) All water wells within the limits of con plugged in accordance with requirements o Road and Bridge Construction, current edit

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be constructed in accordance with	n Standard Drawin			
or as directed by the engineer.		ιų.		
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to be adjusted to also serve as	-			
as directed by the Engineer, may	/ depend on			
e overlayed, existing bituminous c	oncrete located	at a		
proposed subgrade elevation within Itirely unless an overlay has been				
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′-39 <b>.</b> 2′									
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.8' ied joint @ 101.6	5′-102.2′								1400
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