ftn Associates Ltd.
water resources / environmental consultants
3 Innwood Circle, Suite 220 • Little Rock, AR 72211 • (501) 225-7779 • Fax (501) 225-6738

MEMORANDUM

DATE: April 27, 2016

TO: **Annette Cusher, PE**
Engineer Supervisor
Regulated Waste Program
Office of Land Resources
Arkansas Department of Environmental Quality

FROM: **Paul Crawford, PE, PG**
FTN Associates, Ltd.

SUBJECT: Summary of Site Visit of Damco, Inc. Facility
Mountain Home, AR
FTN No. 050

FTN Associates, Ltd. (FTN) was requested to conduct a site reconnaisance of the Damco, Inc. site located near Mountain Home, AR with personnel from the Regulated Waste Program of the Office of Land Resources of the Arkansas Department of Environmental Quality (ADEQ). Mark Koch, Jeremy Brooks, and Paul Crawford of FTN along with Annette Cusher and Weston Lee of the ADEQ conducted the site reconnaisance of the site on April 25, 2016. The purpose of the site visit was to:

1. Review and document existing conditions of the waste tire disposal facility and the constructed dam;
2. Review potential options for site remediation; and
3. Meet with the property owner, if possible.

ADEQ and FTN personnel arrived at the site around 1:00 p.m. and went directly to the dam. All personnel walked around the dam to review the status of the structure and the north side of the pond to review the piles of waste tires. The following items were noted in reviewing the dam and the waste tires:

1. Waste tires are buried outside the limits shown on the original design plans as prepared by Nelson Engineering (1997; Attachment 1). Buried tires were identified on the southwest approach to the crest of the dam and the downstream side of the dam was much large than designed due to extra waste tires.

2. The top (crest) of the dam is approximately the same width (40 ft) as shown on the original design plans. However, the crest is longer than designed (approximately 1,350 ft versus 900 ft). The surface of crest of the dam did not show any signs of settlement or rutting (see Photo 1; Attachment 2)
3. According to the design plans, the downstream side of the dam was supposed to have been constructed at a slope of 3H:1V and was to be approximately 72 ft (horizontal) from crest to toe. However, the downstream side has three benches (terraces) and the slope is much longer than originally designed (approximately 380 ft including benches and slopes between benches). The upper bench is about 100 ft wide and is about five rows of tire bales high (about 15 ft). The middle bench is about 180 ft wide and about nine rows of tire bales high (about 27 ft). The lower bench is approximately 50 ft wide and about two rows of tire bales high (6 ft). Photos 2 through 5 present terraced downstream side of dam.
4. The downstream side of each of the three benches is not covered with dirt and the stacked baled waste tires are exposed (see Photos 2, 3, 4, 5, and 7)
5. The surface of the three benches is not properly graded and stormwater is ponded in many places, creating a source of infiltration into the underlying waste tires.
6. There were many seeps noted at the toe of the slope which may be from the pond, stormwater infiltration, or natural seeps from the bedrock adjacent to the waste tire slope (see Photos 5 and 6).
7. The proposed spillway for the dam had not been constructed.
8. Vegetation was in fair condition on the dam with many bare areas.
9. On all three benches, the soil cover is thin in places and waste tires are exposed. Numerous small cavities into the underlying baled tires were noted at the ground surface.
10. Most of the tires not placed in the dam are baled and stacked two to four bales high. There are unbaled waste tires scattered throughout the site, with some in wooded areas northeast of the pond (see Photos 8 through 11).
11. The baling machinery was still onsite, but not in operating condition.
12. There are nine semi-trailers parked onsite. The equipment was probably used to haul waste tires to the facility. The trailers were not opened during the site visit.
13. There is some general waste materials found throughout the old waste baling operations area, but nothing indicating a potential hazardous condition.
14. There are several areas where waste tires were buried in the vicinity of the old baling operation and storage area.
15. The onsite soils are cherty/gravelly clays (typical of the region). This material is reported to have been used in place of the specified “clay” soil for the dam core.
16. There are several gravel access roads throughout the site and access for construction equipment is good (if necessary).

At the end of the reconnaissance, ADEQ and FTN encountered Mr. Ken Treat (the current property owner, who inherited it from his father). He informed the team a few additional important facts:

1. The pond typically does not overflow and the amount of water varies a couple feet (up and down) each year.
2. The clay soil used for the core of the dam was from an onsite borrow area (northwest of the dam) and is the same material (cherty/gravelly clay) used to cover the waste tires placed in the dam. There is still material that could be used if the ADEQ elects to make any modifications to the dam.
3. His father and his employees did the earthwork related to the dam; a "Mr. Yarborough" was contracted with the solid waste district to take the waste tires, bale them, and place the bales in the dam.
4. He thinks the waste tire disposal operations ceased in 2008.
5. He is interested in providing earthwork construction services if the ADEQ elects to make any modifications to the dam.
6. He is uncomfortable having so many exposed waste tires on his property both for health and potential fire reasons.

Based on a review of permit documents from the ADEQ website, information provided by the ADEQ, the site visit, discussions with the property owner and the ADEQ, the following are potential solutions to the Damco, Inc. site:

Option 1:

- Haul off unburied waste tires to tire processing facility.
- Improve toe drainage of dam to alleviate seepage.
- Place and compact onsite soils on downstream side of dam to cover waste tires and improve drainage.
- Grade downstream slope to maximum slope of 3:1.
- Install stormwater control facilities, including the dam spillway, to manage runoff to prevent erosion of dam slope and toe.
- Establish permanent vegetation on dam and areas where waste tires had been stored and removed.

Option 2 (Similar to Nelson Engineering Design, March 2014; Attachment 3):

- Improve toe drainage of dam to alleviate seepage.
- Place baled waste tires in areas on downstream side of dam as fill material to create a 3:1 slope.
- Haul off any remaining unburied waste tires to tire processing facility.
- Cover waste tires with compacted onsite soils and grade to improve drainage.
- Install stormwater control facilities, including the dam spillway, to manage runoff to prevent erosion of dam slope and toe.
- Establish permanent vegetation on dam and areas where waste tires had been stored and removed.

Option 3:

- Drain existing pond and install geosynthetic clay liner (GCL) on pond bottom.
- Place unburied waste tires in lined pond area.

- Cover waste tires with compacted soil to create cover and promote drainage.
- Improve toe drainage of dam to alleviate seepage.
- Place and compact onsite soils on downstream side of dam to cover waste tires and improve drainage.
- Grade downstream slope to maximum slope of 3:1.
- Install stormwater control facilities, including the dam spillway, to manage runoff to prevent erosion of dam slope and toe.
- Establish permanent vegetation on dam and areas where waste tires had been stored and removed.

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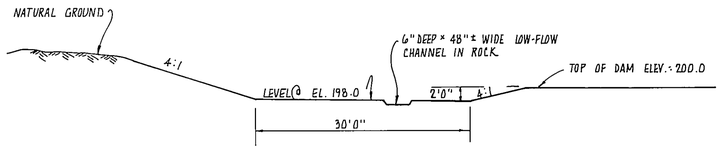
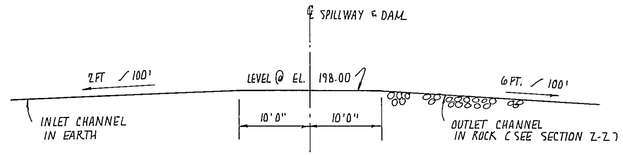
ATTACHMENT 1

Damco, Inc. Site Plans - Nelson Engineering (March 1997)



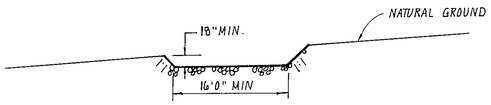
SECTION X-X THRU SPILLWAY

SCALE: 1"= 10'



SECTION Y-Y THRU SPILLWAY

SCALE: 1"= 10'



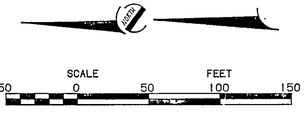
SECTION Z-Z THRU OUTLET CHANNEL

SCALE: 1"= 10'

NOTE: BOTTOM & SIDES OF OUTLET CHANNEL TO BE BEDROCK OR GROUTED ROCK OR STONE

PLAN VIEW

SCALE: 1"= 50'0"



PROJECT REQUIREMENTS:

CONSTRUCTION APPROVAL: A RESIDENT INSPECTOR APPROVED BY THE PROJECT ENGINEER SHALL PERFORM DAY TO DAY INSPECTIONS OF THE WORK ON AN AS-NEEDED BASIS. ALL CONSTRUCTION WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THESE PLANS & SPECIFICATIONS AND SHALL BE APPROVED BY THE PROJECT ENGINEER AND THE RESIDENT INSPECTOR.

WARRANTY: THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A ONE (1) YEAR GUARANTY, WARRANTING THAT ALL NECESSARY PROJECT REPAIRS WILL BE MADE WITHIN ONE YEAR OF THE PROJECT COMPLETION DATE.

"AS-BUILT" DRAWINGS: UPON COMPLETION OF THE PROJECT, TWO (2) COMPLETE SETS OF "AS-BUILT" DRAWINGS SHALL BE PREPARED AND FURNISHED TO THE OWNER BY THE PROJECT ENGINEER.

RESERVOIR DESIGN DATA:

OVERALL DAM LENGTH = 900'
MAXIMUM DAM HEIGHT = 24'10"
MAXIMUM RESERVOIR DEPTH @ SPILLWAY LEVEL = 13'0"
ELEVATION @ TOP OF DAM = 200.0* (ASSUMED DATUM)
ELEVATION @ TOP OF SPILLWAY = 198.0 (ASSUMED DATUM)
SURFACE AREA OF IMPOUNDMENT @ SPILLWAY LEVEL = 3.3 ACRES
STORAGE CAPACITY OF IMPOUNDMENT @ SPILLWAY LEVEL = 20 ACRE-FEET
AREA OF SITE TO BE STRIPPED AND EITHER EXCAVATED OR FILLED = 4.7 ACRES
SPILLWAY CAPACITY W/ 6" FREEBOARD = 180 CFS (100 YR. FLOOD)

* CORE FILL WILL BE ELEVATED 5% TO ALLOW FOR FUTURE SETTLEMENT

ORDER OF WORK:

1. OWNER, CONTRACTOR, ENGINEER & SURVEYOR SHALL MEET AT THE SITE FOR A PRECONSTRUCTION CONFERENCE
2. THE CLEARING LIMITS FOR THE DAM'S CLAY CORE SHALL BE STAKED & FLAGGED. THE CENTERLINE OF THE DAM SHALL BE STAKED AT 100-FOOT INTERVALS & BENCH MARKS SHALL BE SET AT 200-FOOT INTERVALS ALONG THE LENGTH OF THE DAM., BUT OUTSIDE OF THE CONSTRUCTION AREA.
3. THE TWO TRIBUTARY STREAMS FLOWING INTO THE RESERVOIR SITE SHALL BE DIVERTED AROUND THE DAM CONSTRUCTION AREA ~ ONE AROUND EACH END OF THE DAM.
4. THE AREA CONTAINING THE CLAY CORE AND CUT-OFF TRENCH SHALL BE STRIPPED* AND EXCAVATED TO THE PLANNED DIMENSIONS.
5. THE CHOSEN BORROW SITE AREA SHALL BE STRIPPED* & EXCAVATED OF SUITABLE CLAYS FOR THE CORE AND CUT-OFF TRENCH CONSTRUCTION
6. THE CLAY CORE AND CUT-OFF TRENCH SHALL BE CONSTRUCTED & COMPACTED AS SPECIFIED ON THE DRAWINGS. A TEMPORARY 8" PVC PIPE SHALL BE INSTALLED THROUGH THE CORE AT THE LOW POINT IN THE DAM FOR TEMPORARY DRAINAGE DURING CONSTRUCTION OF THE DAM.
7. THE UPSTREAM FOOTPRINT OF THE DAM ON WHICH TIRE BALES ARE TO BE PLACED SHALL BE STRIPPED*, LEVELED, AND FILLED WITH TIRES AND INTERMEDIATE CLAY LEVELING COURSES, PROGRESSING FROM THE DEEPEST PADS AT THE CENTER OF THE DAM TO THE SHALLOWEST PADS AT THE DAM ENDS.
8. THE DOWNSTREAM FOOTPRINT OF THE DAM SHALL BE STRIPPED*, EXCAVATED AND FILLED WITH TIRES AND INTERMEDIATE CLAY LAYERS AS IN (7) ABOVE
9. THE OUTSIDE COVER FOR THE DAM SHALL BE PLACED AND COMPACTED, INCLUDING THE TOPSOIL, TO THE DIMENSIONS & LOCATIONS SHOWN ON THE DRAWINGS.
10. THE SPILLWAY AND SPILLWAY CHANNEL SHALL BE CONSTRUCTED AND THE TEMPORARY CHANNEL DIVERSIONS AROUND THE DAM ENDS SHALL BE RESTORED TO THEIR ORIGINAL COURSES INTO THE RESERVOIR. THE TEMPORARY 8" DRAIN PIPE THROUGH THE RESERVOIR CORE SHALL BE PLUGGED WITH BENTONITE OR NON-SHRINK CEMENT GROUT TO PREVENT ANY LEAKAGE THROUGH THE DAM.
11. ALL DEBRIS SHALL BE REMOVED FROM THE SITE AND THE SITE SHALL BE FINAL-GRADED.
12. ALL DISTURBED AREAS THAT WILL NOT BE FLOODED BY THE IMPOUNDMENT SHALL BE TOPSOILED, SEEDED AND FERTILILED AS REQUIRED HEREIN

* STRIPPING SHALL BE DONE PROGRESSIVELY SO THAT LARGE AREAS OF BARE EARTH ARE NOT LEFT EXPOSED TO RAINFALL OVER EXTENDED PERIODS OF TIME.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Lawrence M. Nelson P.E.
Mar 31st 1997

Solid Waste Division
Drawing # 28653
CSN
Cost
☐ Permit Plan ☐ Construction
☐ Other
Supercedes Drawing #
☐ Superceded by Drawing #
Superceded on Date

NOTE: TOPO SUPPLIED BY SLATER SURVEYING & MAPPING P.O. BOX 70 GASSVILLE, AR. 72655

NELSON ENGINEERING
1601 INNSBROOK CIRCLE, HARRISON, AR 72601 • (501) 365-7390

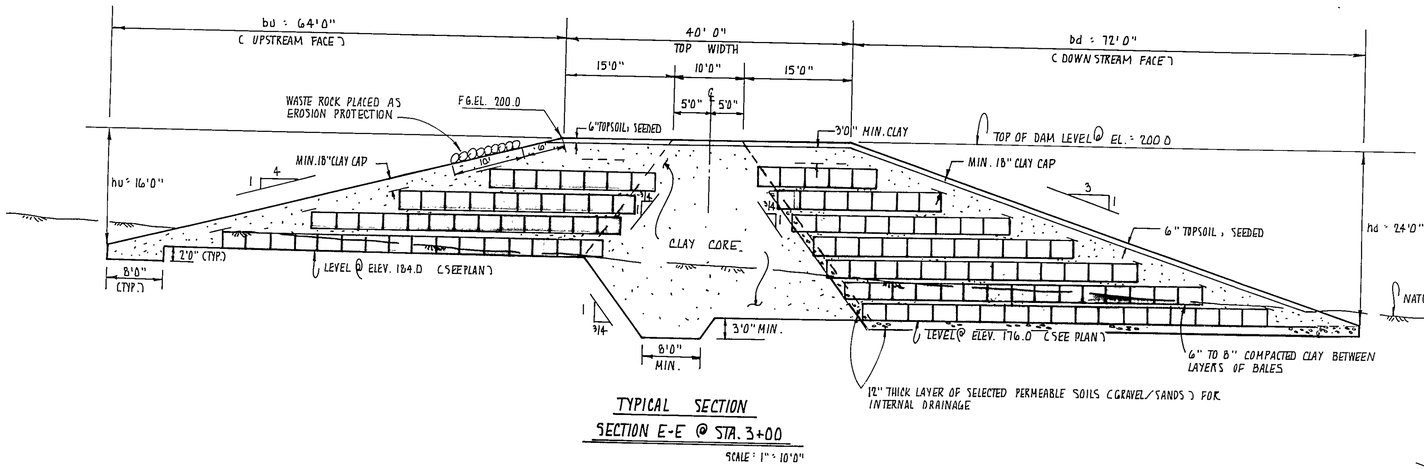
TIRE FILLED DAM
KENTON TREAT PROPERTY
MOUNTAIN HOME, ARKANSAS

SCALE: AS SHOWN	APPROVED BY:	DRAWN BY: LMN, VLC
DATE: MARCH, 1997		REVISED

PLAN & SECTIONS OF DAM & SPILLWAY

OWNER: KENTON TREAT, 931 CR 76, MT. HOME, AR

DRAWING NO 1 OF 5



TYPICAL SECTION
SECTION E-E @ STA. 3+00

SCALE: 1" = 10'0"

SEED SPECIFICATIONS:

ALL DISTURBED AREAS NOT IMPOUNDED SHALL BE SEEDED TO PROVIDE A GOOD STAND OF GRASS TO RESIST EROSION AS SPECIFIED BELOW:

1. REMOVE LARGER ROCKS AND DEBRIS FROM ALL AREAS STRIPPED OF VEGETATION.
2. SPREAD TOPSOIL UNIFORMLY OVER THE DISTURBED AREAS.
3. APPLY LIME AND FERTILIZER AT RATES RECOMMENDED BY SOIL TESTS) SPREAD EVENLY AND INCORPORATE INTO THE TOPSOIL WITH A DISK, PLOW OR TILLER.
4. SOW SEED MECHANICALLY WITHIN 24 HOURS OF PLACEMENT OF LIME AND FERTILIZER. COVER SEEDS, LIGHTLY COMPACT AND MULCH AS NECESSARY.

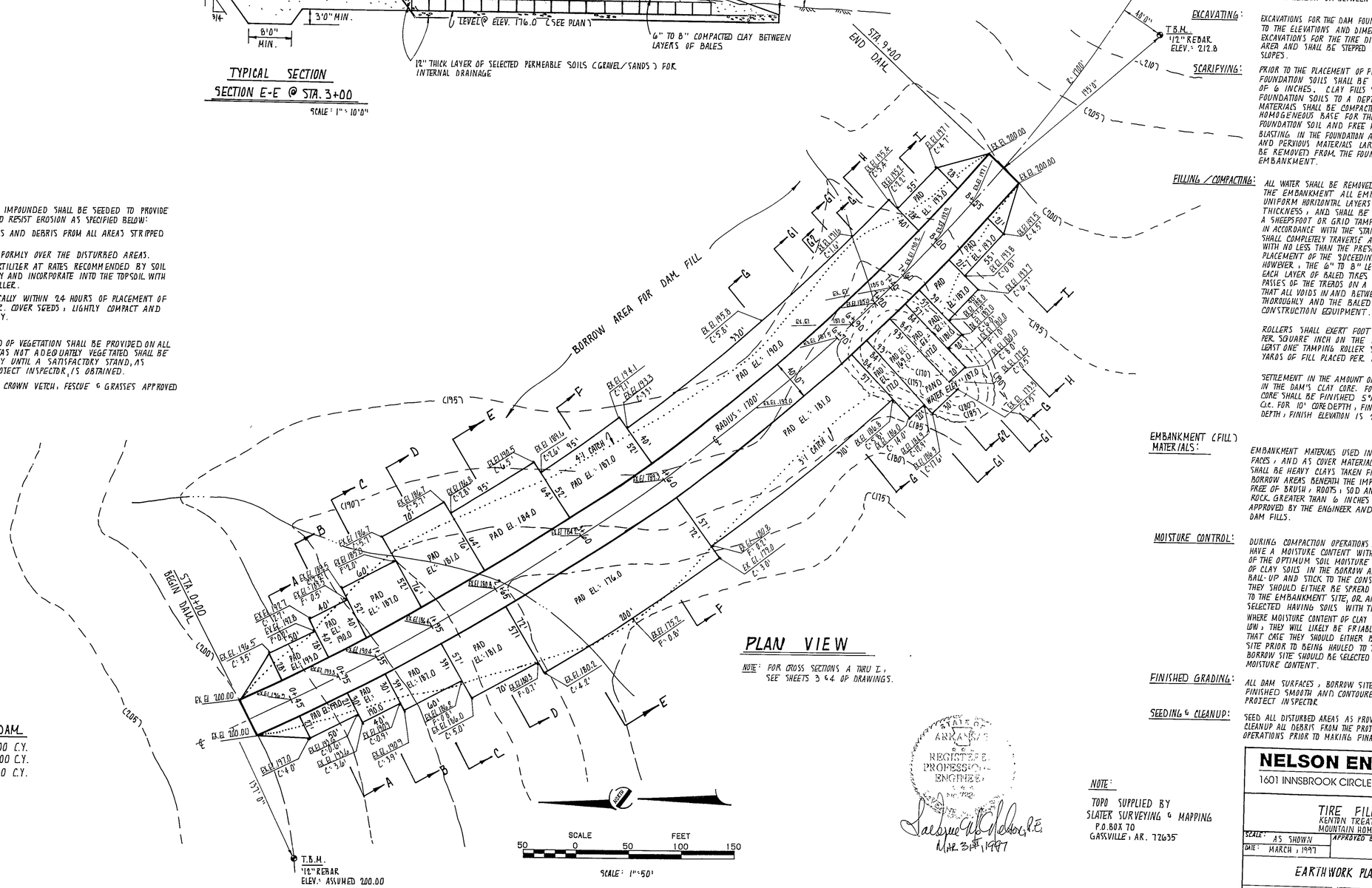
NOTE:

A SATISFACTORY STAND OF VEGETATION SHALL BE PROVIDED ON ALL DISTURBED AREAS. AREAS NOT ADEQUATELY VEGETATED SHALL BE RESEEDED AS NECESSARY UNTIL A SATISFACTORY STAND, AS DETERMINED BY THE PROJECT INSPECTOR, IS OBTAINED.

SEED SHALL CONSIST OF CROWN VETCH, FESCUE & GRASSES APPROVED BY THE OWNER.

ESTIMATED CONSTRUCTION QUANTITIES FOR DAM

TOTAL EXCAVATION	19,100 C.Y.
TOTAL EARTH FILL	27,200 C.Y.
TOTAL TOPSOIL	1300 C.Y.



PLAN VIEW

NOTE: FOR CROSS SECTIONS A THRU I, SEE SHEETS 3 & 4 OF DRAWINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7792
Jackie McClendon, P.E.
MAR. 31ST, 1997

NOTE:

TOPO SUPPLIED BY
SLATER SURVEYING & MAPPING
P.O. BOX 70
GASSVILLE, AR. 72635

EARTHWORK SPECIFICATIONS:

SURVEYING: PRIOR TO CONSTRUCTION, A SURVEYOR SHALL LOCATE THE CENTERLINE OF THE DAM, STAKING AND FLAGGING IT AT 100-FOOT INTERVALS. OFFSETS TO THE CENTERLINE STAKES SHALL BE SET AS NEEDED TO PREVENT LOSS OF STAKES BY CONSTRUCTION EQUIPMENT. THE SURVEYOR SHALL ALSO SET ALL STAKES INDENTIFYING STRIPPING AND CLEARING LIMITS ON AN AS-NEEDED BASIS.

STRIPPING: ALL TOPSOILS AND ORGANIC MATERIALS SHALL BE STRIPPED FROM EXCAVATION SITES. TOPSOILS SHALL BE SEGREGATED AND STOCKPILED FOR LATER USE ON THE EXTERIOR FACE OF THE DAM. TREES, ROOTS, GRASS, ETC. STRIPPED FROM THE SITES SHALL BE DISPOSED OF OUTSIDE OF THE DAM AREA IN ACCORDANCE WITH ALL LOCAL LAWS AND REGULATIONS FOR BURNING AND DISPOSAL OF WASTE MATERIALS. NO ORGANIC MATERIAL, TOPSOIL OR FROZEN SOILS SHALL BE ALLOWED IN THE FOUNDATION AREA OF THE DAM OR BENEATH OR BETWEEN ANY OF THE LAYERS OF BALED TIRES

EXCAVATING: EXCAVATIONS FOR THE DAM FOUNDATION AND CUT-OFF WALLS SHALL BE MADE TO THE ELEVATIONS AND DIMENSIONS SHOWN ON THESE DRAWINGS. EXCAVATIONS FOR THE TIRE DISPOSAL PADS SHALL BE LEVEL THROUGHOUT THEIR AREA AND SHALL BE STEPPED FROM PAD TO PAD AT 12:1 OR STEEPER SLOPES.

SCARIFYING: PRIOR TO THE PLACEMENT OF FILLS AND BALED TIRES, ALL DAM FOUNDATION SOILS SHALL BE SCARIFIED AND LOOSENED TO A DEPTH OF 6 INCHES. CLAY FILLS SHALL BE BLENDED INTO THE LOOSENED FOUNDATION SOILS TO A DEPTH OF 6 INCHES, AND THE BLENDED MATERIALS SHALL BE COMPACTED AS SPECIFIED BELOW TO FORM A DENSE HOMOGENEOUS BASE FOR THE DAM THAT IS BONDED TO THE FOUNDATION SOIL AND FREE FROM SOIL LAMINATIONS. BLASTING IN THE FOUNDATION AREA IS NOT PERMITTED. ALL LOOSE ROCK AND PERVIOUS MATERIALS LARGER THAN 6 INCHES IN DIAMETER SHALL BE REMOVED FROM THE FOUNDATION PRIOR TO PLACEMENT OF THE EMBANKMENT.

FILLING/COMPACTING: ALL WATER SHALL BE REMOVED FROM THE FOUNDATION PRIOR TO PLACING THE EMBANKMENT. ALL EMBANKMENT MATERIALS SHALL BE PLACED IN UNIFORM HORIZONTAL LAYERS NOT EXCEEDED 8 INCHES IN LOOSE THICKNESS, AND SHALL BE COMPACTED WITH 4 OR MORE PASSES OF A SHEEPSFOOT OR GRID TAMPING ROLLER CAPABLE OF OBTAINING 95% DENSITY IN ACCORDANCE WITH THE STANDARD PROCTOR DENSITY TEST. ROLLERS SHALL COMPLETELY TRAVERSE ALL CORE FILLS AND FACE FILLS OF THE DAM WITH NO LESS THAN THE PRESCRIBED FOUR (4) PASSES PRIOR TO PLACEMENT OF THE SUCCEEDING LAYER OF EMBANKMENT SOIL. HOWEVER, THE 6" TO 8" LEVELING LAYERS OF CLAY FILLS BETWEEN EACH LAYER OF BALED TIRES SHALL BE WALKED-IN WITH FOUR OR MORE PASSES OF THE TREADS ON A BULLDOZER, RATHER THAN A ROLLER, ASSURING THAT ALL VOIDS IN AND BETWEEN THE TIRE BALES HAVE BEEN FILLED THOROUGHLY AND THE BALED TIRES HAVE NOT BEEN DAMAGED BY THE CONSTRUCTION EQUIPMENT.

ROLLERS SHALL EXERT FOOT PRESSURES OF NO LESS THAN 400 POUNDS PER SQUARE INCH ON THE CLAY CORE FILLS AND DAM FACE FILLS. AT LEAST ONE TAMPING ROLLER SHALL BE PROVIDED FOR EACH 125 CUBIC YARDS OF FILL PLACED PER HOUR.

SETTLEMENT IN THE AMOUNT OF 5% (i.e. 1 IN 20) SHOULD BE EXPECTED IN THE DAM'S CLAY CORE. FOR THAT REASON, THE TOP OF THE DAM'S CLAY CORE SHALL BE FINISHED 5% HIGHER THAN THE 200.0 DESIGN ELEVATION (i.e. FOR 10' CORE DEPTH, FINISHED ELEVATION IS 200.5; FOR 20' CORE DEPTH, FINISH ELEVATION IS 201.0)

EMBANKMENT (FILL) MATERIALS: EMBANKMENT MATERIALS USED IN THE DAM'S CLAY CORE, THE DAM'S CLAY FACES, AND AS COVER MATERIALS BETWEEN AND OVER THE BALED TIRES, SHALL BE HEAVY CLAYS TAKEN FROM ON-SITE EXCAVATIONS AND SELECTED BORROW AREAS BENEATH THE IMPOUNDMENT AREA. THESE CLAYS SHALL BE FREE OF BRUSH, ROOTS, SOD AND OTHER ORGANIC MATTER, AS WELL AS ROCK GREATER THAN 6 INCHES IN MAXIMUM SIZE, AND SHALL BE APPROVED BY THE ENGINEER AND PROJECT INSPECTOR FOR USE IN THE DAM FILLS.

MOISTURE CONTROL: DURING COMPACTION OPERATIONS, EMBANKMENT SOILS (CLAY) SHALL HAVE A MOISTURE CONTENT WITHIN TWO (2) PERCENT, PLUS OR MINUS, OF THE OPTIMUM SOIL MOISTURE CONTENT. WHERE MOISTURE CONTENT OF CLAY SOILS IN THE BORROW AREA ARE EXCESSIVE THEY WILL LIKELY BALL-UP AND STICK TO THE CONSTRUCTION EQUIPMENT. IN THAT CASE, THEY SHOULD EITHER BE SPREAD AND ALLOWED TO DRY PRIOR TO HAULING TO THE EMBANKMENT SITE, OR, ANOTHER, DRIER BORROW SITE SHOULD BE SELECTED HAVING SOILS WITH THE PROPER MOISTURE CONTENT. WHERE MOISTURE CONTENT OF CLAY SOILS IN THE BORROW AREA ARE TOO LOW, THEY WILL LIKELY BE FRIABLE AND BREAK UP INTO DRY CLODS. IN THAT CASE THEY SHOULD EITHER BE UNIFORMLY WETTED AT THE BORROW SITE PRIOR TO BEING HAULED TO THE EMBANKMENT, OR ANOTHER BORROW SITE SHOULD BE SELECTED HAVING SOILS WITH THE PROPER MOISTURE CONTENT.

FINISHED GRADING: ALL DAM SURFACES, BORROW SITES AND WASTE AREAS SHALL BE FINISHED SMOOTH AND CONTOURED TO THE SATISFACTION OF THE PROJECT INSPECTOR.

SEEDING & CLEANUP: SEED ALL DISTURBED AREAS AS PROVIDED BY THESE SPECIFICATIONS AND CLEANUP ALL DEBRIS FROM THE PROJECT AREA LEFT BY THE CONTRACTOR'S OPERATIONS PRIOR TO MAKING FINAL PAYMENT FOR THE WORK PERFORMED.

NELSON ENGINEERING
1601 INNSBROOK CIRCLE, HARRISON, AR 72601 • (501) 365-7390

TIRE FILLED DAM
KENTON TREAT PROPERTY
MOUNTAIN HOME, ARKANSAS

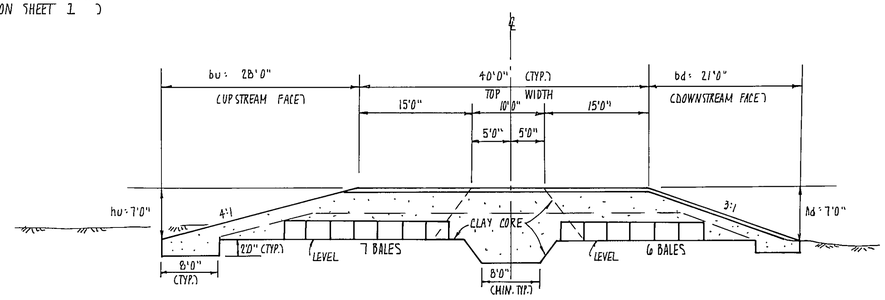
SCALE: AS SHOWN	APPROVED BY:	DRAWN BY: LMN, VLC
DATE: MARCH, 1997		REVISED:

EARTHWORK PLAN and TYPICAL CROSS SECTION

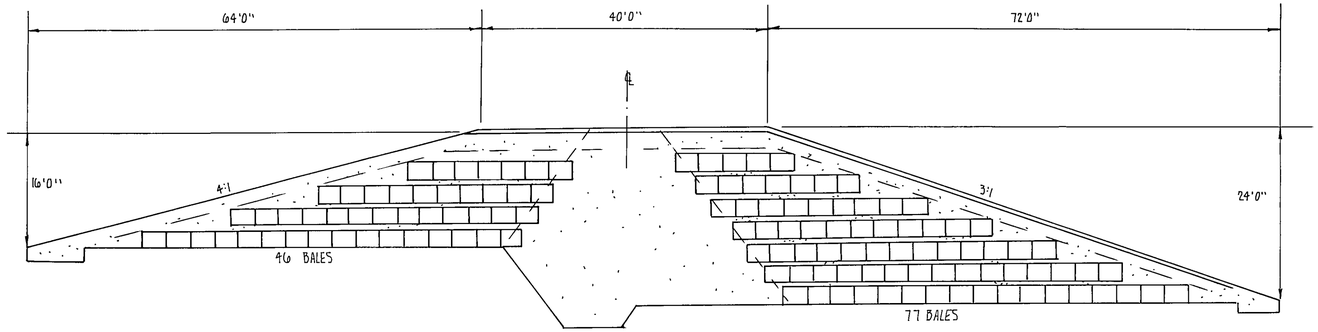
OWNER: KENTON TREAT
831 CR 746
MT. HOME, AR.

DRAWING NO. 2 OF 5

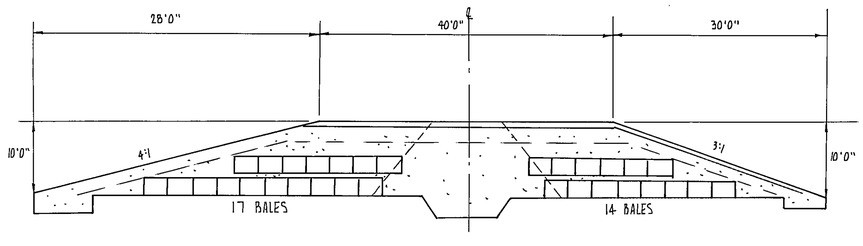
NOTE: DIMENSION TYPICAL ALL SECTIONS UNLESS OTHERWISE SHOWN. (SEE TYPICAL SECTION ON SHEET 1)



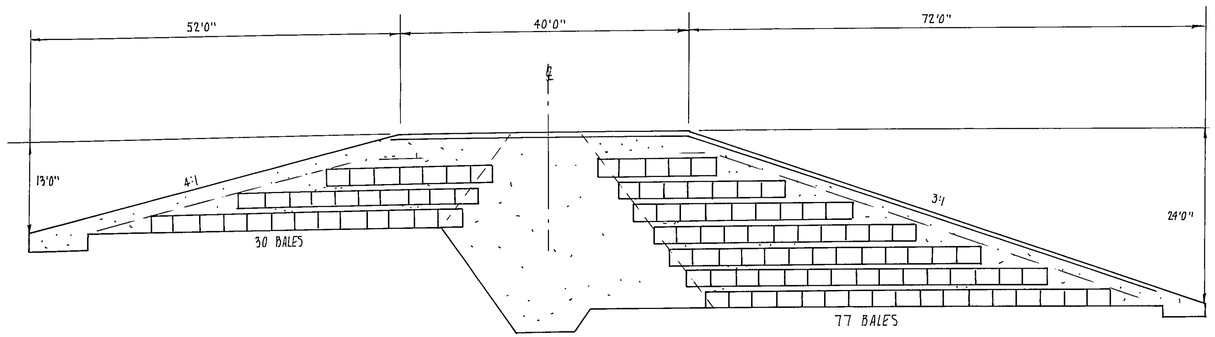
SECTION A-A



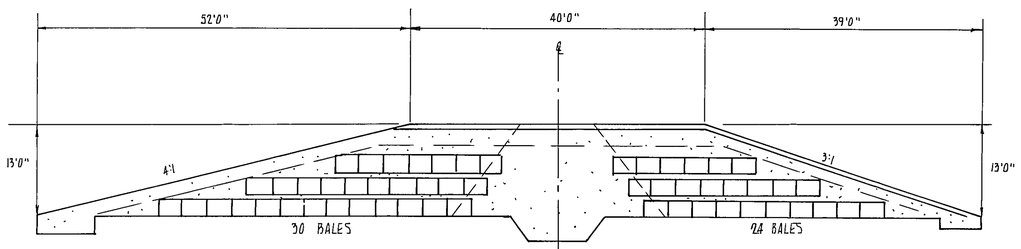
SECTION E-E



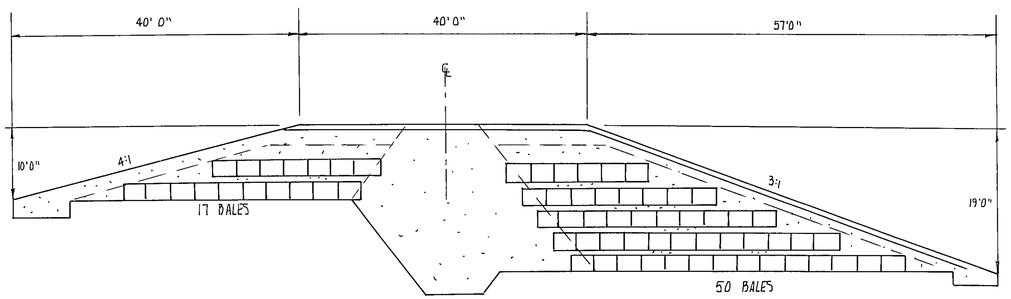
SECTION B-B



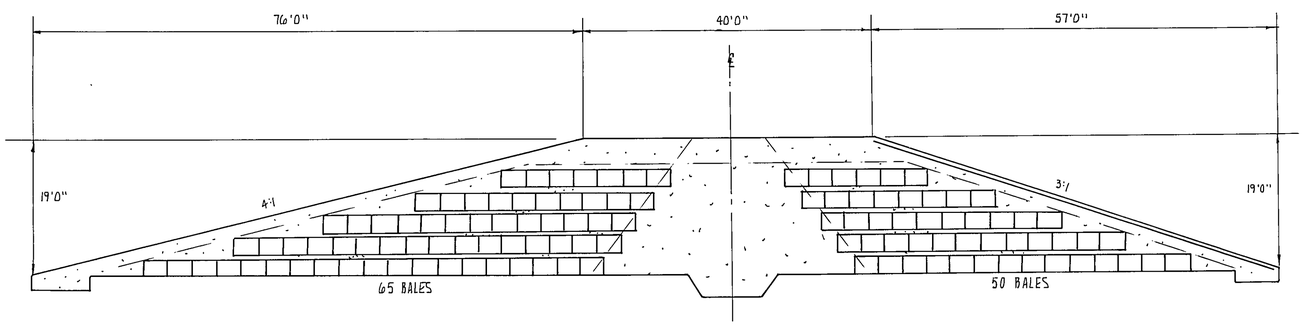
SECTION F-F



SECTION C-C



SECTION G-G



SECTION D-D

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JAMES M. NELSON
Jay Jerye Gilbert Nelson, P.E.
MAR. 31ST, 1997

NELSON ENGINEERING

1601 INNSBROOK CIRCLE, HARRISON, AR 72601 • (501) 365-7390

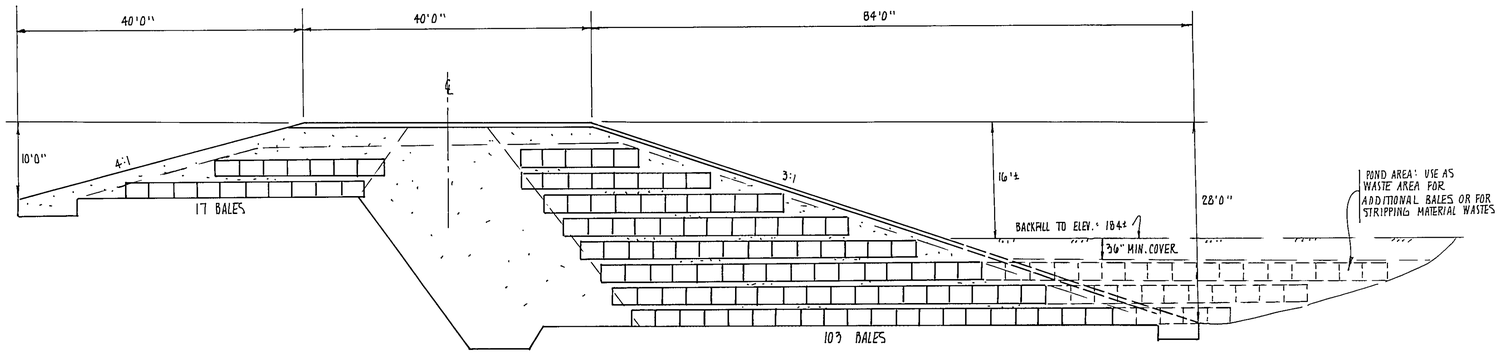
TIRE FILLED DAM
KENTON TREAT PROPERTY
MOUNTAIN HOME, ARKANSAS

SCALE: 1" = 10'0"	APPROVED BY:	DRAWN BY: LHN, VLC
DATE: MARCH, 1997		REVISED:

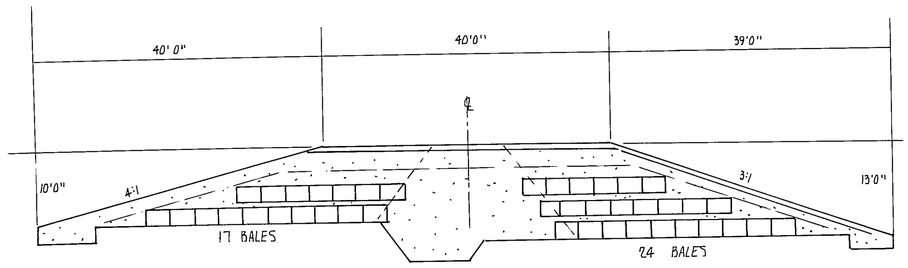
CROSS SECTIONS

OWNER: KENTON TREAT
651 CR 765
MT. HOME, AR.

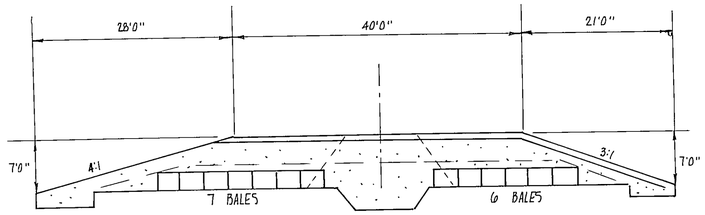
DRAWING NO 3 OF 5



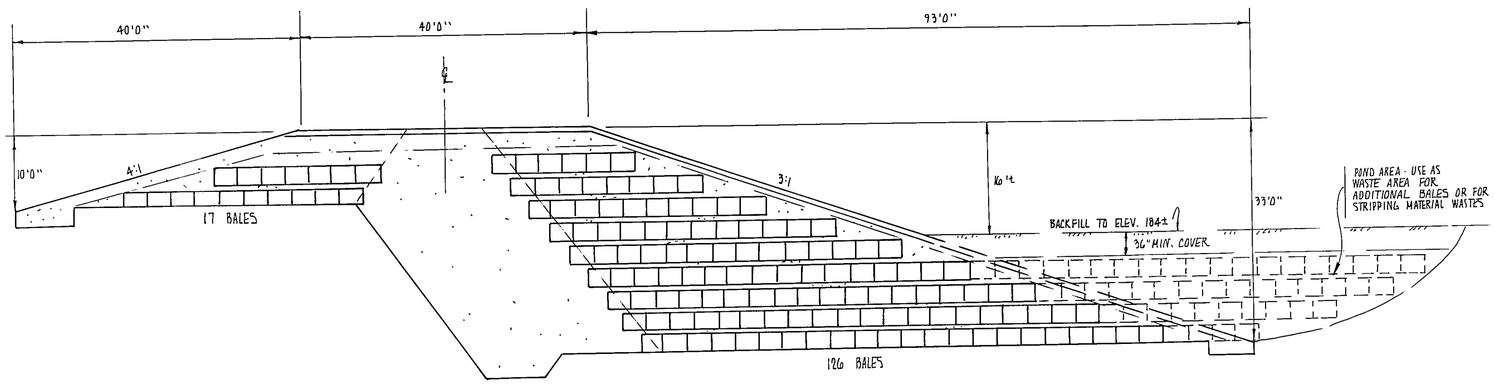
SECTION G1 - G1



SECTION H-H



SECTION I-I



SECTION G2 - G2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7826
LAFAYETTE M. NELSON

Lafayette M. Nelson, P.E.
MAR 31ST, 1997

NELSON ENGINEERING

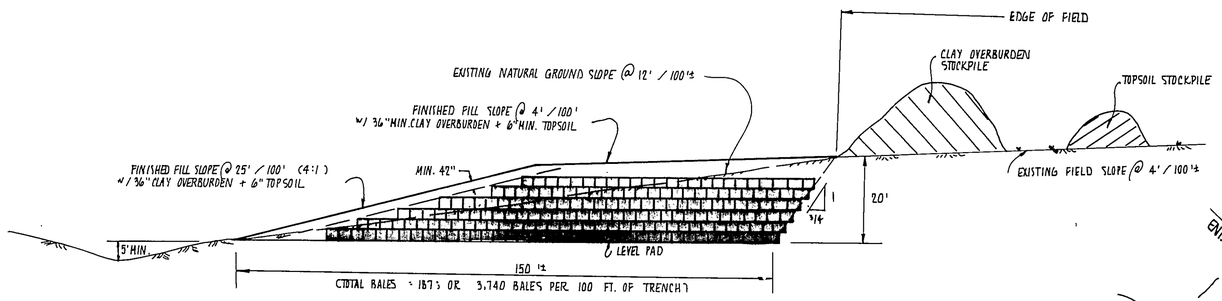
1601 INNSBROOK CIRCLE, HARRISON, AR 72601 • (501) 365-7390

TIRE FILLED DAM
KENTON TREAT PROPERTY
MOUNTAIN HOME, ARKANSAS

SCALE: 1" = 10'0"	APPROVED BY:	DRAWN BY: LMN, VIC
DATE: MARCH, 1997		REVISED:

CROSS SECTIONS

OWNER: KENTON TREAT 851 CR 764 MT. HOME, AR	DRAWING NO. 4 OF 5

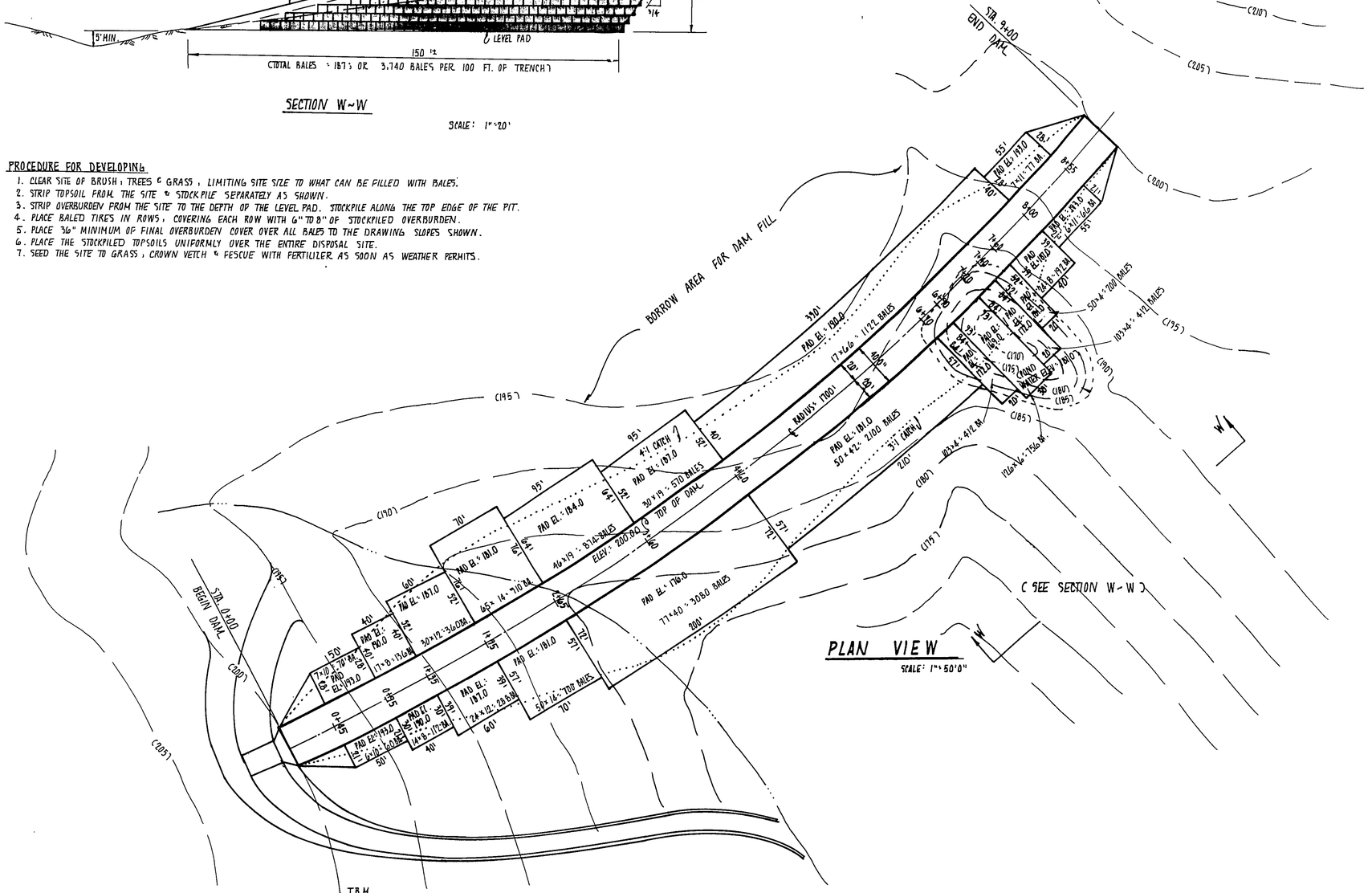


SECTION W-W

SCALE: 1"=20'

PROCEDURE FOR DEVELOPING

1. CLEAR SITE OF BRUSH, TREES & GRASS, LIMITING SITE SIZE TO WHAT CAN BE FILLED WITH BALES.
2. STRIP TOPSOIL FROM THE SITE & STOCKPILE SEPARATELY AS SHOWN.
3. STRIP OVERBURDEN FROM THE SITE TO THE DEPTH OF THE LEVEL PAD. STOCKPILE ALONG THE TOP EDGE OF THE PIT.
4. PLACE BALED TIRES IN ROWS, COVERING EACH ROW WITH 6" TO 8" OF STOCKPILED OVERBURDEN.
5. PLACE 36" MINIMUM OF FINAL OVERBURDEN COVER OVER ALL BALES TO THE DRAWING SLOPES SHOWN.
6. PLACE THE STOCKPILED TOPSOILS UNIFORMLY OVER THE ENTIRE DISPOSAL SITE.
7. SEED THE SITE TO GRASS, CROWN VETCH & FESCUE WITH FERTILILER AS SOON AS WEATHER PERMITS.



PLAN VIEW

SCALE: 1"=50'0"

BALED TIRE INFORMATION:

AVERAGE BALE SIZE = 30" x 40" x 60"
NUMBER OF TIRE BALES IN UPSTREAM FACE = 4120
NUMBER OF TIRE BALES IN DOWNSTREAM FACE = 8380
TOTAL TIRE BALES IN DAM = 12,500

NOTE:

TOPO SUPPLIED BY
SLATER SURVEYING & MAPPING
P.O. BOX 70
GASSVILLE, AR. 72635

SCALE 50 0 50 100 150 FEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7884
LAVERNE M. NELSON

LaVerne M. Nelson, P.E.
MAR. 31ST, 1997

NELSON ENGINEERING
1601 INNSBROOK CIRCLE, HARRISON, AR 72601 • (501) 365-7390

TIRE FILLED DAM
KENTON TREAT PROPERTY
MOUNTAIN HOME, ARKANSAS

SCALE: AS SHOWN	APPROVED BY:	DRAWN BY: LMN, YLC
DATE: MARCH, 1997		REVISED:

BALED TIRE PLAN SHOWING QUANTITIES

OWNER: KENTON TREAT
951 CR 764
MT. HOME, AR.

DRAWING NO 5 OF 5

ATTACHMENT 2

April 25, 2016 Site Visit Photo Log

Photo 1: Looking northwest at crest of dam.

Photo 2: Looking north at western edge of upper bench; note exposed baled tires.

Photo 3: Looking northwest at western edge of middle bench; note exposed baled tires.

Photo 4: Looking north at western edge of middle bench on right and lower bench on the left; note exposed baled tires.

Photo 5: Looking east at western slope of dam; middle bench is at top of photo and lower bench is in middle of photo; note seepage (orange staining) in foreground.

Photo 6: Seepage flowing west from toe of slope.

Photo 7: Looking southeast at western slope of dam; middle bench is at upper surface of exposed baled tires.

Photo 8: Unbaled tractor trailer tires located northwest of dam.

Photo 9: Stacked baled tires located north of dam near old baling area.

Photo 10: Large unbaled tires located in wooded area east of old baling area.

Photo 11: Baled and stacked tires located east of dam and old baling area.

ATTACHMENT 3

Proposed Improvements for Damco, Inc. - Nelson Engineering (March 2014)

Kincade Law Office

RONALD P. KINCADE
KERRY D. CHISM

701 S. CHURCH STREET
MOUNTAIN HOME, AR 72653
PHONE (870) 425-8454
FAX (870) 424-4046

March 21, 2014

AFIN: 03-00208
Pmt #: 0022-SWTP
REC'D
SCAN [X] MAR 24 2014
Doc ID#: 65702
To: BJ Zyla

SWMD

Benjamin Jones
Chief Counsel
ADEQ
5301 Northshore Drive
North Little Rock, AR 72118

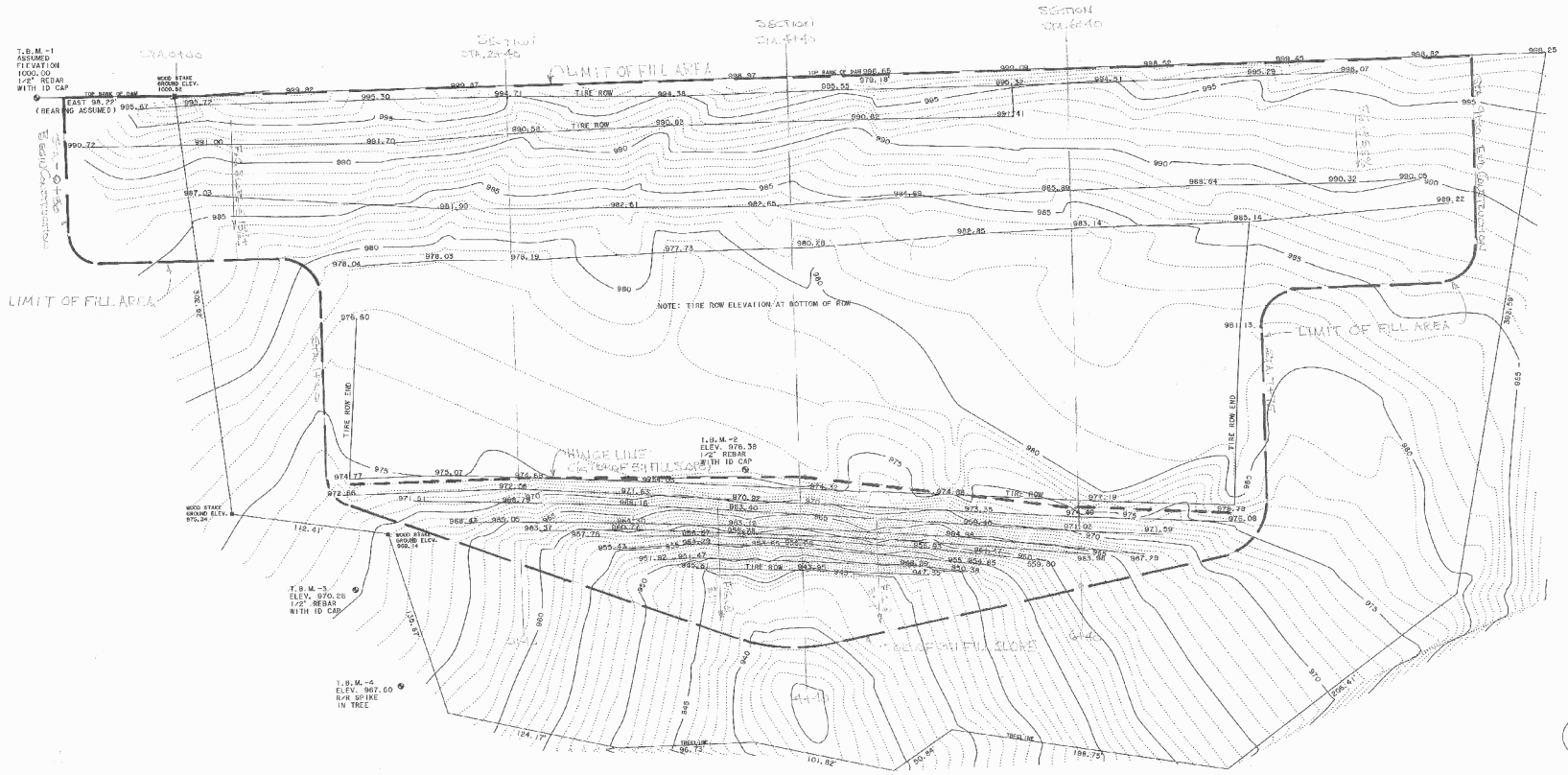
Re: Tires

Dear Mr. Jones:

Enclosed please find plans prepared by Nelson Engineering that Kenny Treat picked up today in Harrison. Once you have had a chance to review them, I would suggest we have a meeting.

Sincerely,

Kerry D. Chism



IMPROVEMENT PLAN

FOR

DOWNSTREAM FACE OF EXISTING DAM

SHOWING ROWS OF EXISTING BALED TIRES, CONTOURS, AND FILL AREA & SLOPES

(FOR PLACEMENT OF TIRE BALES AND FILLS SEE SHEETS 3 THRU 4)

TOPOGRAPHIC SURVEY

LOCATED IN A PART OF SECTION 33,
TOWNSHIP 21 NORTH RANGE 13 WEST
BAXTER COUNTY, ARKANSAS

SURVEY FOR: KENNY TREAT
DATE: SEPTEMBER 23, 2013

40 0 40 80 120
GRAPHIC SCALE - FEET

CONTOUR INTERVAL - 1 FOOT
AREA - 9.42 ACRES +/-

NOTES:
TBM 1 TO TBM-2
S 61°25' 30" E 571.87'
TBM-2 TO TBM-3
S 73°30' 02" W 291.43'
TBM 1 TO TBM-3
S 32°00' 58" E 420.21'
TBM-3 TO TBM-4
S 24°19' 58" E 76.22'

SEED SPECIFICATIONS:

ALL DISTURBED AREAS NOT IMPOUNDED SHALL BE SEEDED TO PROVIDE A GOOD STAND OF GRASS TO RESIST EROSION AS SPECIFIED BELOW:

1. REMOVE LARGER ROCKS AND DEBRIS FROM ALL AREAS STRIPPED OF VEGETATION.
2. SPREAD TOPSOIL UNIFORMLY OVER THE DISTURBED AREAS.
3. APPLY LIME AND FERTILIZER AT RATES RECOMMENDED BY SOIL TESTS. SPREAD EVENLY AND INCORPORATE INTO THE TOPSOIL WITH A DISK, PLOW, OR TILLER.
4. SOW SEED MECHANICALLY WITHIN 24 HOURS OF PLACEMENT OF LIME AND FERTILIZER. COVER SEEDS, LIGHTLY COMPACT, AND MULCH AS NECESSARY.

NOTE:

A SATISFACTORY STAND OF VEGETATION SHALL BE PROVIDED ON ALL DISTURBED AREAS. AREAS NOT ADEQUATELY VEGETATED SHALL BE RESEEDED AS NECESSARY UNTIL A SATISFACTORY STAND, AS DETERMINED BY THE PROJECT INSPECTOR, IS OBTAINED.

SEED SHALL CONSIST OF CROWN VETCH, FESCUE, AND GRASSES APPROVED BY THE OWNER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7804
3/21/2014

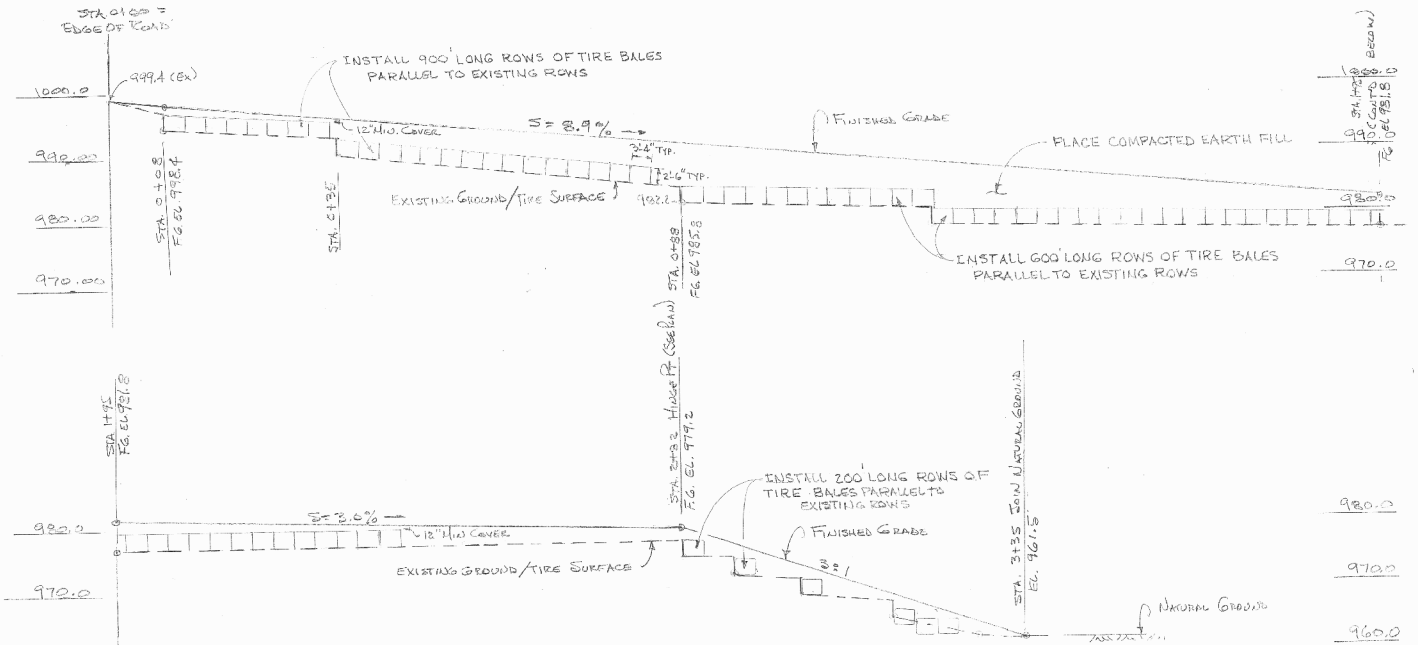
NELSON ENGINEERING
1601 Innsbrook Circle
Harrison, AR 72601

CONSTRUCTION SPECIFICATIONS:

1. ALL INSTALLED BALES SHALL ABUT EXISTING BALES OR SHALL KEY INTO EXISTING SOILS.
2. BALES SHALL NOT BE STACKED DIRECTLY ON TOP OF OTHER BALES. THEY SHALL BE SEPARATED BY AT LEAST 6 INCHES WITH GRADED AND COMPACTED CLAY SOIL.
3. BALES SHALL BE TIGHTLY ABUTTED TOGETHER AS SHOWN ON THE DRAWINGS. THEY SHALL BE WALKED AND VIBRATED INTO PLACE WITH SEVERAL PASSES OF A BULLDOZER TO PREVENT DAMAGE TO WIRE BANDING.
4. A MINIMUM OF 12 INCHES OF CLAY COVER SHALL BE PROVIDED OVER THE COMPLETED BALES.
5. A MINIMUM COMPLETED SURFACE SLOPE OF 3% (3'/100') SHALL BE PROVIDED FOR POSITIVE SLOPE DRAINAGE TO PREVENT PONDING ON THE EMBANKMENT.
6. FILL SOILS SHALL BE CLAY-TYPE SOILS TAKEN FROM ON-SITE BORROW AREAS, AND SHALL BE FREE OF BRUSH, ROOTS, AND FROZEN MATERIAL.
7. THE DESIGN IS FOR 12,220 BALES, BUT ONLY 5,025 BALES ARE AVAILABLE ON-SITE. THE CONTRACTOR CAN SELECT WHICH BALES HE ELIMINATES, AND REPLACE THEM WITH COMPACTED EARTH FILL.
8. THE ENGINEER SHALL PROVIDE INSPECTION ON AN AS-NEEDED BASIS. UPON COMPLETION OF THE WORK HE SHALL CERTIFY THAT THE SITE IS CLEARED OF ALL STORED BALES AND THAT THE EARTH COVER AND SEEDING REQUIREMENTS HAVE BEEN COMPLIED WITH FOR THE STORAGE AND WORK AREAS.

Slater Surveying & Mapping
POST OFFICE BOX 70
CASSVILLE, ARKANSAS 72635
(870) 435 - 6006

KENNY TREAT DAM
BAXTER COUNTY, AR. 3/25/2014



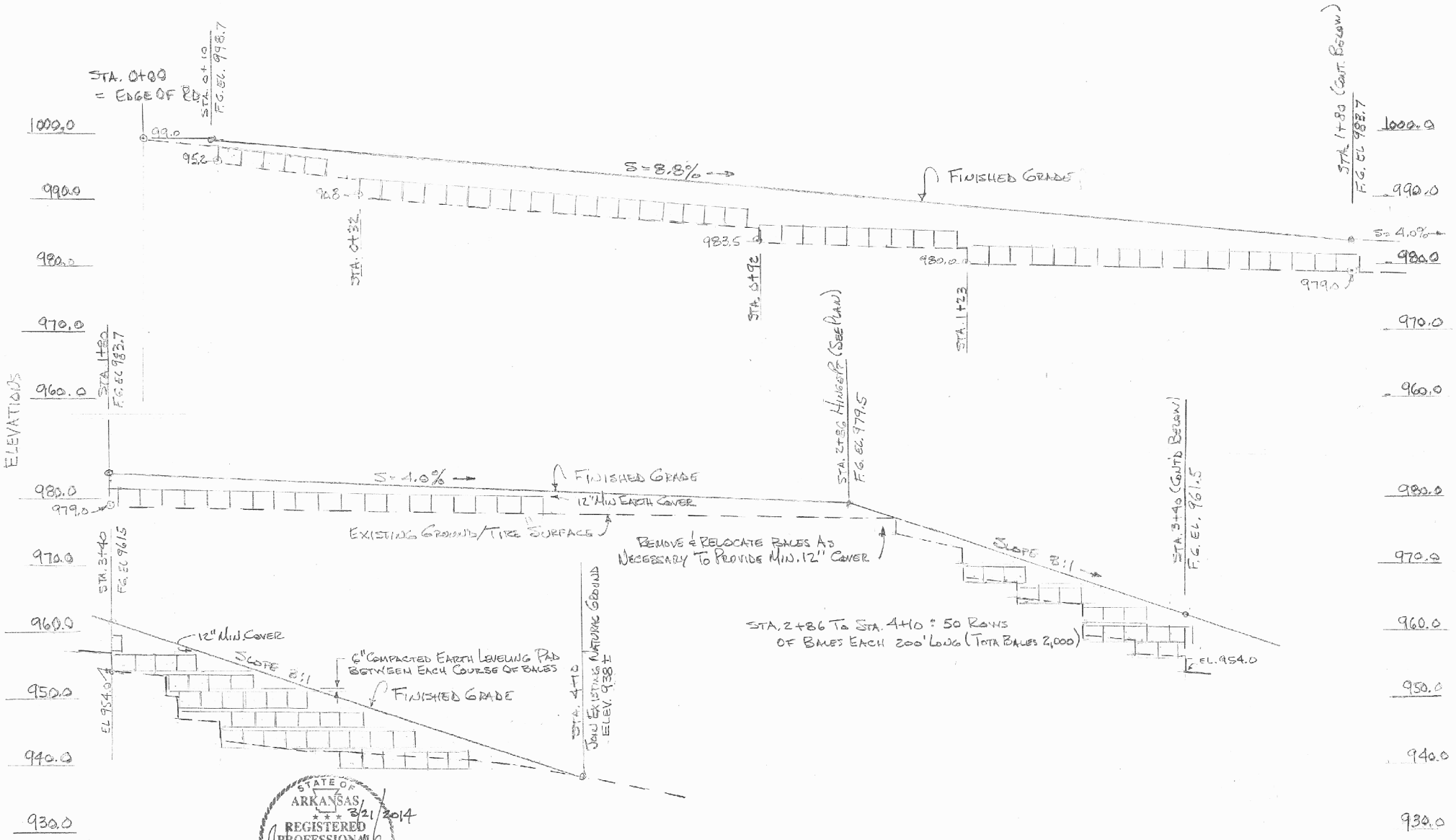
STA. 2+82 TO STA. 3+35: 6 ROWS OF BALES EACH 200' LONG (TOTAL BALES 240)

STATE OF ARKANSAS 3/21/2014 REGISTERED PROFESSIONAL ENGINEER No. 7864 LAVERNE M. NELSON

NELSON ENGINEERING
1601 Innsbrook Circle
Harrison, AR 72601

STA 2+40 Cross Section
SHOWING BALED* TIRE DISPOSAL & FILL COMPLETION
Scale: 1" = 10'
* ALL BALES ARE 2'-6" HIGH, 3'-4" WIDE AND 5'-6" LONG

KENTON TREAT DAM
BAXTER COUNTY, AR. 3/20/2014



STATE OF ARKANSAS
3/21/2014
REGISTERED PROFESSIONAL ENGINEER
No. 7884
LaVerne M. Nelson

NELSON ENGINEERING
1601 Innsbrook Circle
Harrison, AR 72601

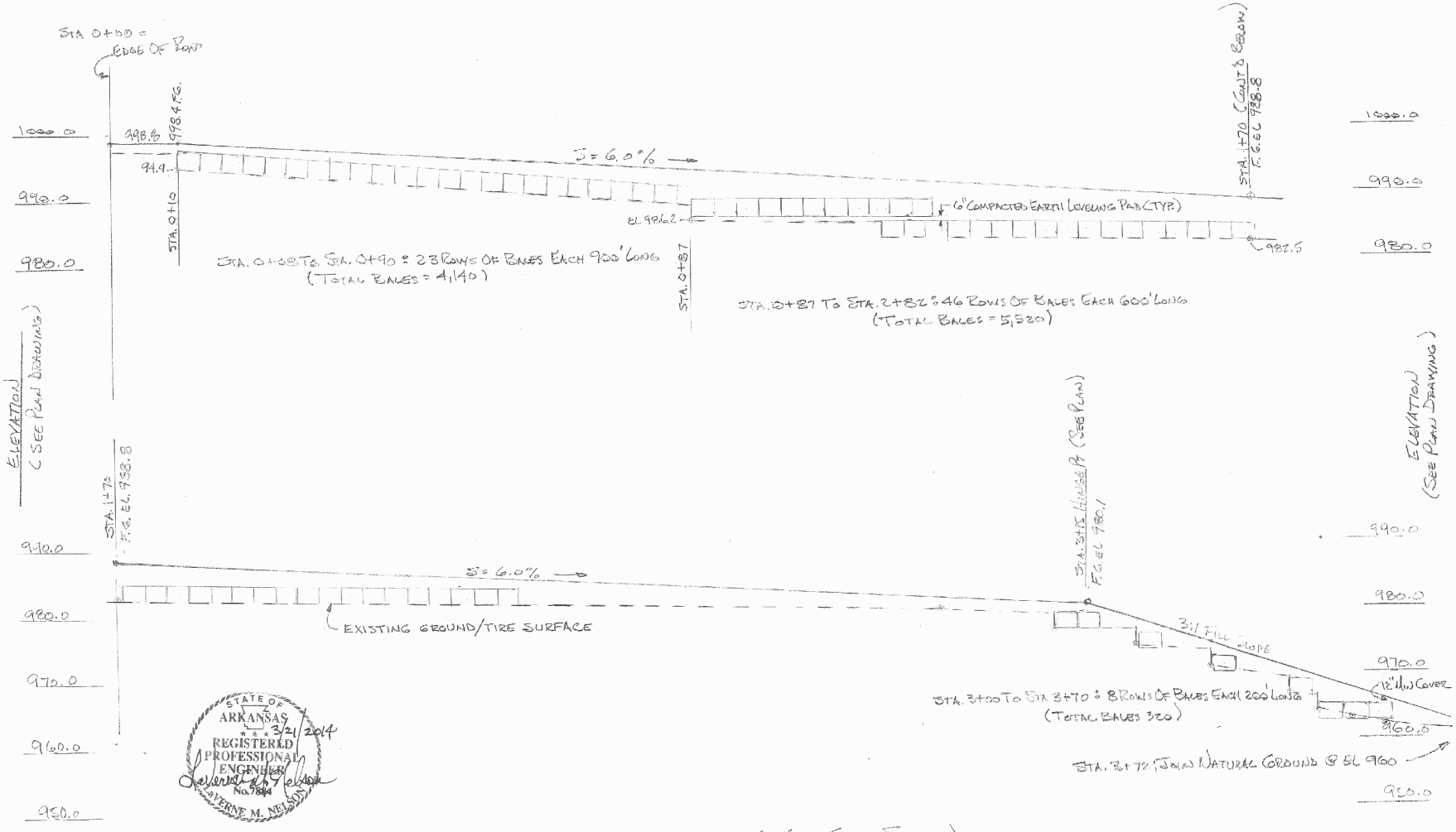
STA 4+40 Cross Section

SHOWING BALED* TIRE DISPOSAL & FILL COMPLETION

SCALE: 1" = 10'

* ALL BALES ARE 2'-6" HIGH, 3'-4" WIDE AND 5'-0" LONG

KEPTON TREAT DAM
BAXTER COUNTY, AR. 3/20/2014



STATE OF ARKANSAS
3/21/2014
REGISTERED PROFESSIONAL ENGINEER
No. 7844
LaVERNE M. NELSON

NELSON ENGINEERING
1601 Innsbrook Circle
Harrison, AR 72601

STA. 6+40 (Cross Section)

SHOWING BALED* TIRE DISPOSAL & FILL COMPLETION

SCALE: 1" = 10'

* ALL BALES ARE 2'-6" HIGH, 3'-4" WIDE AND 5'-0" LONG

KENTON TREAT DAM
BAXTER COUNTY, AR. 3/20/2014