STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
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RECEIVED
MAR 11 2008
Division of Reclamation Mining and Safety

COLORADO DIVISION OF RECLAMATION MINING & SAFETY

CONSTRUCTION MATERIALS
REGULAR (112) OPERATION
RECLAMATION PERMIT APPLICATION FORM

CHECK ONE: ✓ **There is a File Number Already Assigned to this Operation**

Permit # M -____-____-___ (Please reference the file number currently assigned to this operation)

____ **New** Application (Rule 1.4.5) ____ **Amendment** Application (Rule 1.10)

✓ **Conversion** Application (Rule 1.11)

Permit # M -1997-100-____ (provide for **Amendments** and **Conversions** of existing permits)

The application for a Construction Materials Regular 112 Operation Reclamation Permit contains three major parts: (1) the application form; (2) Exhibits A-S, Addendum 1, any sections of Exhibit 6.5 (Geotechnical Stability Exhibit; and (3) the application fee. When you submit your application, be sure to include one (1) complete signed and notarized **ORIGINAL** and one (1) copy of the completed application form, two (2) copies of Exhibits A-S, Addendum 1, appropriate sections of 6.5 (Geotechnical Stability Exhibit, and a check for the application fee described under Section (4) below. Exhibits should **NOT** be bound or in a 3-ring binder; maps should be folded to 8 1/2" X 11" or 8 1/2" X 14" size. To expedite processing, please provide the information in the format and order described in this form.

GENERAL OPERATION INFORMATION

Type or print clearly, in the space provided, ALL information requested below.

1. **Applicant/operator or company name (name to be used on permit):** LAS ANIMAS COUNTY
   - 1.1 Type of organization (corporation, partnership, etc.): COUNTY GOV'T

2. **Operation name (pit, mine or site name):** BRANSON PIT

3. **Permitted acreage (new or existing site):** 9.9 permitted acres
   - 3.1 Change in acreage (+) 5.54 acres
   - 3.2 Total acreage in Permit area 15.49 acres

4. **Fees:**
   - 4.1 New Application **$2,696.00** application fee
   - 4.2 New Quarry Application **$3,342.00** quarry application
   - 4.4 Amendment Fee **$2,229.00** amendment fee
   - 4.5 Conversion to 112 operation (set by statute) **$2,696.00** conversion fee

5. **Primary commoditie(s) to be mined:** ROAD BASE
   - 5.1 Incidental commoditie(s) to be mined: 1. NONE lbs/Tons/yr 2. ____ / ____ lbs/Tons/yr
     3. ____ / ____ lbs/Tons/yr 4. ____ / ____ lbs/Tons/yr 5. ____ / ____ lbs/Tons/yr
   - 5.2 Anticipated end use of primary commoditie(s) to be mined: ROAD BASE ON COUNTY ROADS
   - 5.3 Anticipated end use of incidental commoditie(s) to be mined: NONE

6. **Name of owner of subsurface rights of affected land**: JOHN & JOAN DOHERTY
   If 2 or more owners, "refer to Exhibit O".

7. **Name of owner of surface of affected land**: JOHN & JOAN DOHERTY

8. **Type of mining operation**: X Surface _____ Underground

9. **Location Information**: The center of the area where the majority of mining will occur:

   COUNTY: LAS ANIMAS

   PRINCIPAL MERIDIAN (check one): X 6th (Colorado) _____ 10th (New Mexico) _____ Ute

   SECTION (write number): S 7

   TOWNSHIP (write number and check direction): T 35 ___ North X South

   RANGE (write number and check direction): R 57 ___ East X West

   QUARTER SECTION (check one): ___ NE ___ NW X SE ___ SW

   QUARTER/QUARTER SECTION (check one): ___ NE ___ NW ___ SE X SW

   GENERAL DESCRIPTION: (the number of miles and direction from the nearest town and the approximate elevation): PITS
   APP. 3 MILES E, SE OF BRANSON COLORADO

10. **Primary Mine Entrance Location** (report in either Latitude/Longitude **OR** UTM):

    Latitude/Longitude:

    Example: (N) 39° 44′ 12.98″
    (W) 104° 59′ 3.87″

    Latitude (N): deg _____ min _____ sec ____._____ (2 decimal places)

    Longitude (W): deg _____ min _____ sec ____._____ (2 decimal places)

    OR

    Example: (N) 39.73691°
    (W) -104.98449°

    Latitude (N) _____._____ (5 decimal places)

    Longitude(W) _____._____ (5 decimal places)

    OR

    Universal Tranverse Mercator (UTM)

    Example: 201336.3 E NAD27 Zone 13
    4398351.2 N

    UTM Datum (specify NAD27, NAD83 or WGS 84) _____ Zone 13S

    Easting 603169

    Northing 4095989

11. **Correspondence Information:**

APPLICANT/OPERATOR (name, address, and phone of name to be used on permit)

Contact's Name: PHIL DOREMUS MP Title: ROAD SUPV

Company Name: LAS ANIMAS COUNTY

Street/P.O. Box: 2000 N. LINDEN AVE. P.O. Box: _____

City: TRINIDAD

State: CO. Zip Code: 81082

Telephone Number: (719) - 846-2931

Fax Number: (719) - 846-0434

PERMITTING CONTACT (if different from applicant/operator above)

Contact's Name: " Title: _____

Company Name: _____

Street/P.O. Box: _____ P.O. Box: _____

City: _____

State: _____ Zip Code: _____

Telephone Number: (_____) - _____

Fax Number: (_____) - _____

INSPECTION CONTACT

Contact's Name: " Title: _____

Company Name: _____

Street/P.O. Box: _____ P.O. Box: _____

City: _____

State: _____ Zip Code: _____

Telephone Number: (_____) - _____

Fax Number: (_____) - _____

CC: STATE OR FEDERAL LANDOWNER (if any)

Agency: N/A

Street: _____

City: _____

State: _____ Zip Code: _____

Telephone Number: (_____) - _____

CC: STATE OR FEDERAL LANDOWNER (if any)

Agency: N/A

Street: _____

City: _____

State: _____ Zip Code: _____

Telephone Number: (_____) - _____

12. **Primary future (Post-mining) land use (check one):**

____ Cropland(CR)	____ Pastureland(PL)	____ General Agriculture(GA)
X Rangeland(RL)	____ Forestry(FR)	____ Wildlife Habitat(WL)
____ Residential(RS)	____ Recreation(RC)	____ Industrial/Commercial(IC)
____ Developed Water Resources(WR)		____ Solid Waste Disposal(WD)

13. **Primary present land use (check one):**

____ Cropland(CR)	____ Pastureland(PL)	____ General Agriculture(GA)
X Rangeland(RL)	____ Forestry(FR)	____ Wildlife Habitat(WL)
____ Residential(RS)	____ Recreation(RC)	____ Industrial/Commercial(IC)
____ Developed Water Resources(WR)		

14. **Method of Mining**: Briefly explain mining method (e.g. truck/shovel): LOADER & DOZER FEEDING CRUSHER & OR SCREEN PLANTS

15. **On Site Processing**: X Crushing/Screening

13.1 Briefly explain mining method (e.g. truck/shovel): SEE 14

List any designated chemicals or acid-producing materials to be used or stored within permit area: NONE

16. **Description of Amendment or Conversion**:

If you are amending or converting an existing operation, provide a brief narrative describing the proposed change(s).

CONVERTING 110 PERMIT TO 112 PERMIT

Maps and Exhibits:

Two (2) complete, unbound application packages must be submitted. One complete application package consists of a signed application form and the set of maps and exhibits referenced below as Exhibits A-S, Addendum 1, and the Geotechnical Stability Exhibit. Each exhibit within the application must be presented as a separate section. Begin each exhibit on a new page. Pages should be numbered consecutively for ease of reference. If separate documents are used as appendices, please reference these by name in the exhibit.

With each of the two (2) signed application forms, you must submit a corresponding set of the maps and exhibits as described in the following references to Rule 6.4, 6.5, and 1.6.2(1)(b):

EXHIBIT A	Legal Description
EXHIBIT B	Index Map
EXHIBIT C	Pre-Mining and Mining Plan Map(s) of Affected Lands
EXHIBIT D	Mining Plan
EXHIBIT E	Reclamation Plan
EXHIBIT F	Reclamation Plan Map
EXHIBIT G	Water Information
EXHIBIT H	Wildlife Information
EXHIBIT I	Soils Information
EXHIBIT J	Vegetation Information
EXHIBIT K	Climate Information
EXHIBIT L	Reclamation Costs
EXHIBIT M	Other Permits and Licenses
EXHIBIT N	Source of Legal Right-To-Enter
EXHIBIT O	Owners of Record of Affected Land (Surface Area) and Owners of Substance to be Mined
EXHIBIT P	Municipalities Within Two Miles
EXHIBIT Q	Proof of Mailing of Notices to County Commissioners and Conservation District
EXHIBIT R	Proof of Filing with County Clerk or Recorder
EXHIBIT S	Permanent Man-Made Structures
Rule 1.6.2(1)(b)	ADDENDUM 1 - Notice Requirements (sample enclosed)
Rule 6.5	Geotechnical Stability Exhibit (any required sections)

The instructions for preparing Exhibits A-S, Addendum 1, and Geotechnical Stability Exhibit are specified under Rule 6.4 and 6.5 and Rule 1.6.2(1)(b) of the Rules and Regulations. If you have any questions on preparing the Exhibits or content of the information required, or would like to schedule a pre-application meeting you may contact the Office at 303-866-3567.

Responsibilities as a Permittee:

Upon application approval and permit issuance, this application becomes a legally binding document. Therefore, there are a number of important requirements which you, as a permittee, should fully understand. These requirements are listed below. Please read and initial each requirement, in the space provided, to acknowledge that you understand your obligations. If you do not understand these obligations then please contact this Office for a full explanation.

JMC

1. Your obligation to reclaim the site is not limited to the amount of the financial warranty. You assume legal liability for all reasonable expenses which the Board or the Office may incur to reclaim the affected lands associated with your mining operation in the event your permit is revoked and financial warranty is forfeited;

2. The Board may suspend or revoke this permit, or assess a civil penalty, upon a finding that the permittee violated the terms or conditions of this permit, the Act, the Mineral Rules and Regulations, or that information contained in the application or your permit misrepresent important material facts;

3. If your mining and reclamation operations affect areas beyond the boundaries of an approved permit boundary, substantial civil penalties, to you as permittee can result;

4. Any modification to the approved mining and reclamation plan from those described in your approved application requires you to submit a permit modification and obtain approval from the Board or Office;

5. It is your responsibility to notify the Office of any changes in your address or phone number;

6. Upon permit issuance and prior to beginning on-site mining activity, you must post a sign at the entrance of the mine site, which shall be clearly visible from the access road, with the following information (Rule 3.1.12):

   a. the name of the operator;

   b. a statement that a reclamation permit for the operation has been issued by the Colorado Mined Land Reclamation Board; and,

   c. the permit number.

7. The boundaries of the permit boundary area must be marked by monuments or other markers that are clearly visible and adequate to delineate such boundaries prior to site disturbance.

8. It is a provision of this permit that the operations will be conducted in accordance with the terms and conditions listed in your application, as well as with the provisions of the Act and the Construction Material Rules and Regulations in effect at the time the permit is issued.

9. Annually, on the anniversary date of permit issuance, you must submit an annual fee as specified by Statute, and an annual report which includes a map describing the acreage affected and the acreage reclaimed to date (if there are changes from the previous year), any monitoring required by the Reclamation Plan to be submitted annually on the anniversary date of the permit approval. Annual fees are for the previous year a permit is held. For example, a permit with the anniversary date of July 1, 1995, the annual fee is for the period of July 1, 1994 through June 30, 1995. Failure to submit your annual fee and report by the permit anniversary date may result in a civil penalty, revocation of your permit, and forfeiture of your financial warranty. It is your responsibility, as the permittee, to continue to pay your annual fee to the Office until the Board releases you from your total reclamation responsibility.

10. For joint venture/partnership operators: the signing representative is authorized to sign this document and a power of attorney (provided by the partner(s)) authorizing the signature of the representative is attached to this application.

NOTE TO COMMENTORS/OBJECTORS:

It is likely there will be additions, changes, and deletions to this document prior to final decision by the Office. Therefore, if you have any comments or concerns you must contact the applicant or the Office prior to the decision date so that you will know what changes may have been made to the application document.

The Office is not allowed to consider comments, unless they are written, and received prior to the end of the public comment period. You should contact the applicant for the final date of the public comment period.

If you have questions about the Mined Land Reclamation Board and Office's review and decision or appeals process, you may contact the Office at (303) 866-3567.

Certification:

As an authorized representative of the applicant, I hereby certify that the operation described has met the minimum requirements of the following terms and conditions:

1. To the best of my knowledge, all significant, valuable and permanent man-made structure(s) in existence at the time this application is filed, and located within 200 feet of the proposed affected area have been identified in this application (Section 34-32.5-115(4)(e), C.R.S.).

2. No mining operation will be located on lands where such operations are prohibited by law (Section 34-32.5-115(4)(f), C.R.S.;

3. As the applicant/operator, I do not have any extraction/exploration operations in the State of Colorado currently in violation of the provisions of the Colorado Land Reclamation Act for the Extraction of Construction Materials (Section 34-32.5-120, C.R.S.) as determined through a Board finding.

4. I understand that statements in the application are being made under penalty of perjury and that false statements made herein are punishable as a Class 1 misdemeanor pursuant to Section 18-8-503, C.R.S.

This form has been approved by the Mined Land Reclamation Board pursuant to section 34-32.5-112,C.R.S., of the Colorado Land Reclamation Act for the Extraction of Construction Materials. Any alteration or modification of this form shall result in voiding any permit issued on the altered or modified form and subject the operator to cease and desist orders and civil penalties for operating without a permit pursuant to section 34-32.5-123, C.R.S.

Signed and dated this 4th day of March, 2008.

Las Animas County
Applicant/Operator or Company Name

Signed: Jim D Montoya

Title: Chairman

If Corporation Attest (Seal)

Signed: Bernard J Gonzales by Lauri Hoyt
Corporate Secretary or Equivalent
Town/City/County Clerk

State of Colorado)
) ss.
County of Las Animas)

The foregoing instrument was acknowledged before me this 4th day of March 2008, by Jim D. Montoya as Chairman of Las Animas County Board of Commissioners.

Kimberly A. Chavez
Notary Public

My Commission expires: 5/23/2010

SIGNATURES MUST BE IN BLUE INK

6.4.1 EXHIBIT A – Legal Description and Location Map

1. The areas of the west and northwest portions of this pit are already mined under the current Branson Pit permit #M-1997-100, a 110. This is a conversion of this pit to a 112. We've taken the top off of an existing mesa that is west of an existing fence line (illustrated in Display C-b) and now want to expand this pit eastwardly and remove the top off of the remainder of this mesa.

    a. a tract of land located in part in the E ½ of the SW ¼ and W ½ of the SE ¼ of Section 7, Township 35 South, Range 57 West of the 6th P.M., County of Las Animas, State of Colorado
    b. main location UTM WGS 84 603164e 4097259n
    c. UTM WGS 84 13S boundary location as follows
    From the point of beginning located at 603169e 4095989n
    To a point located at 603313e 4095985n
    To a point located at 603339e 4095934n
    To a point located at 603294e 4095866n
    To a point located at 603174e 4095786n
    To a point located at 602974e 4095785.7n
    To a point located at 602973.7e 4095986n
    To the point of beginning
    see included map labeled Display A – Legal Description

    Containing 15.49 acres more or less.

6.4.2 EXHIBIT B – Index Map

a. see included map labeled Display B – Index Map;

6.4.3 EXHIBIT C – Pre-mining and Mining Plan Map(s) of Affected Lands

a. all adjoining surface owners of record; see included map Display C-a
b. name location of all creeks, roads etc; see included map Display B – Index Map. Display C-b illustrates existing fence.
c. the existing topography etc.; see included map Display B – Index Map.
d. total affected lands area; see included map Display C-d
e. type of vegetation; see included Display C-e information from the Natural Resource Conservation Service (NRCS)
f. water information; this operation is not expected to directly effect surface or groundwater systems
g. owner of structures and types; see included map Display C-b
h. soils information; see Display C-e information from the NRCS
i. aerial photos; see Display C-i

6.4.4 EXHIBIT D – Mining Plan

As written above, the areas of the west and northwest portions of this pit are already mined under the current Branson Pit permit #M-1997-100, a 110. This is a conversion of this pit to a 112. We've taken the top off of an existing mesa that is west of an existing

fence line (illustrated in Display C-b) and are now wanting to expand this pit eastwardly and remove the top off of the remainder of this mesa.

We'll also remove a fence, relocate it along the eastern boundary until all activity ceases and replace it after the reclamation is complete.

a. method of mining – A dozer, loader and/or trucks will be used to push, load and haul topsoil to the topsoil stockpile. This topsoil has a significant amount of rock naturally mixed in with it as evidenced by the amount of rock showing itself at the surface. After the topsoil is relocated, the dozer and loader will commence to move enough existing overburden to achieve a usable crushed base material excavate material (pit run). The loader will dump the pit run into the hopper that feeds the crusher-screen, dumping onto the flat belt(s) that dump(s) onto the stacking conveyor that dumps the processed material on to the processed material stockpile.
b. Earthmoving – since the west, northwest portion of this pit is already mined, earth moving will commence at the middle of this pit and move to the east
c. Water diversions & impoundments – water diversions and impoundments will be constructed only to prevent storm water runoff
d. Size of area to be worked at any one time – up to the entire pit or appr. 15.49 acres
e. Appr. time table to describe the mining operation – if everything goes as planned, we'll commence earthmoving in the Summer of 2008 followed shortly by processing the material. We'll reclaim excavated sites, if area allows, as we excavate different areas using these materials to reclaim previously excavated areas.
    i. Estimated time for each stage – the entire excavation of the site should take appr. 10 years from the day of commencement. The reclamation should start within 2 years of the ceasing of mining activities and should be completed within 5 years.
    ii. Description of size and location – we're anticipating the size to be up to the entire permitted pit and the location to be the same during this phase of excavation.
    iii. Sequence of each stage – we're anticipating starting at the middle portion of the site and mine toward the east.
f.
    i. Nature, depth and thickness of product to be mined and overburden – nature of the product is rock to be processed into road base, depth varies from appr. 6" to appr. 5', thickness varies from appr. 5 to appr. 15 feet. The type of overburden to be removed is a rock and dirt mix.
    ii. Nature of the stratum immediately beneath – nature of stratum appears to be sandstone
g. Primary and secondary commodities – primary commodity is road base; intended use: road base for County Roads. Secondary product, if encountered, is big rock; intended use: may be used for rip rap
h. Name and describe all incidental products – no incidental products are expected

6.4.5 EXHIBIT E – Reclamation Plan

1. see below
2.
    a. type of reclamation – the reclamation will be to reapply stockpiled topsoil once excavation has ceased in a certain area, it was chosen since the pit will generate this soil, the amount of acreage is potentially the entire permitted area. Reclamation of excavated sites may take place as we excavate different areas using these materials to reclaim the previously excavated areas
    b. the pit will be reclaimed to a rangeland use, the same as the other land uses in the vicinity
    c.
        i. 3.1.1 post mining use rangeland
        ii. 3.1.2 not applicable
        iii. 3.1.3 see section 6.4.4 (time phase reclamation)
        iv. 3.1.4 no public use
        v. 3.1.5
            1. Grading will be accomplished to create a final slope of no steeper than 3:1.
            2. where backfilling is used, compaction will be accomplished by the equipment doing the backfilling
            3. grading will be done to no steeper than a 3:1 slope at the perimeter of the pit. All high walls will either be eliminated or stabilized
            4. see section 6.4.4
            5. no refuse and acid forming or toxic materials should be mined
            6. no drill or auger holes should be used
            7. finished slopes will be no steeper than 3:1 except in areas where no mining activities will take place (naturally existing slopes)
            8. finished use is rangeland
            9. no structural materials will be used to backfill
            10. all disposal material will be handled with equipment that will ensure no pollution releases into the drainage system
            11. no release of pollutants will occur from materials
        vi. 3.1.6
            1. see section 6.4.4
            2. see section 6.4.4
            3. topsoil stockpiles will be seeded as per the NRCS's recommendation if necessary
        vii. 3.1.7
            1. this operation is not expected to directly effect groundwater systems

viii. 3.1.8
    1. since this is an expansion of a current 110 permit, the same wildlife considerations will be employed for this expansion
    2. habitat management and creation is not part of the reclamation plan
ix. 3.1.9
    1. This item will be complied with and when necessary, topsoil stockpiles will be seeded in accordance to Display C – e information from the NRCS
    2. 2,3,4,5,6,7,8 will be followed as needed
x. 3.1.10
    1. 1,2,3,4,5,6,7,8,9 will be followed as needed with revegation done according the Display C – e information from the NRCS
xi. 3.1.11 no structures are in the affected area. A barbed wire fence exists app. midway through the proposed pit running north and south, this fence will be moved temporarily to outside the eastern boundary of the permitted area
xii. 3.1.12 signs and markers will be posted as required
xiii. 3.1.13 spills will be reported as required

d. see Display C-e information from the NRCS and section 6.4.4
e. see section 6.4.4
f.
    i. final grading – finished slopes will be no steeper than 3:1, except areas that have not been disturbed, they will remain at their natural existing slopes
    ii. seeding – see Display C-e information from the NRCS
    iii. fertilization – no fertilization will be used
    iv. revegetation – none will be done except seeding as described in Display C-e information from the NRCS
    v. topsoiling – depth range should be between 1" to 12" with a lot of existing rock in the top soil. This rock currently extrudes through the top soil

6.4.6 EXHIBIT F – Reclamation Plan Map

a. see Display F-a (post mining contours). To establish contours prior to excavation isn't feasible at this site since the deepest the excavation will extend to is appr. 15'. All finished slopes of the affected areas will be no steeper than 3:1
b. final land use is rangeland

6.4.7 EXHIBIT G – Water Information

1. this operation is not expected to directly effect surface or groundwater systems

6.4.8 EXHIBIT H – Wildlife information

1.
    a. same as with the original pit

b. same as with the original pit
c. same as with the original pit
d. same as with the original pit

6.4.9 EXHIBIT I – Soils Information

1. see section 6.4.3

6.4.10 EXHIBIT J – Vegetation Information

1. see Display C – e information from the NRCS
2. see Display C – e information from the NRCS

6.4.11 EXHIBIT K – Climate

1. see Display C - e information from the NRCS;

6.4.12 EXHIBIT L – Reclamation Costs

1. 1 & 2 unit of county government;

6.4.13 EXHIBIT M – Other permits and Licenses

will be seeking a storm water permit if expansion is approved;

6.4.14 EXHIBIT N – Source of Legal Right to Enter

Presented in attached agreement with property owner (Display G);

6.4.15 EXHIBIT O – Owner(s) of Record of Affected Land (Surface Area) and Owners of Substance to be Mined

see 6.4.3 Display C – a

6.4.16 EXHIBIT P – Municipalities Within Two Miles

there are no municipalities within two miles of the proposed pit

6.4.17 EXHIBIT Q – Proof of Mailing of Notices to Board of County Commissioners and Soil Conservation District

see Displays H & I copies of signed delivery notices

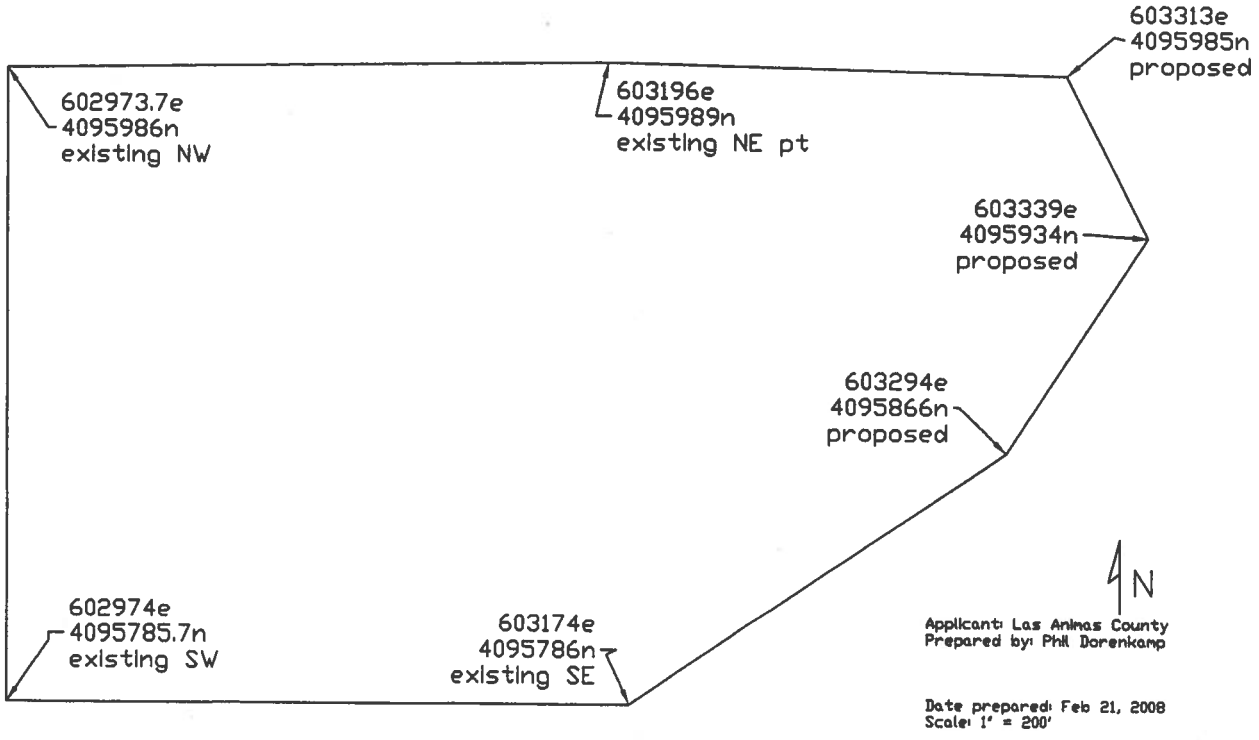
6.4.18 EXHIBIT R – Proof of Filing with County Clerk and Recorder

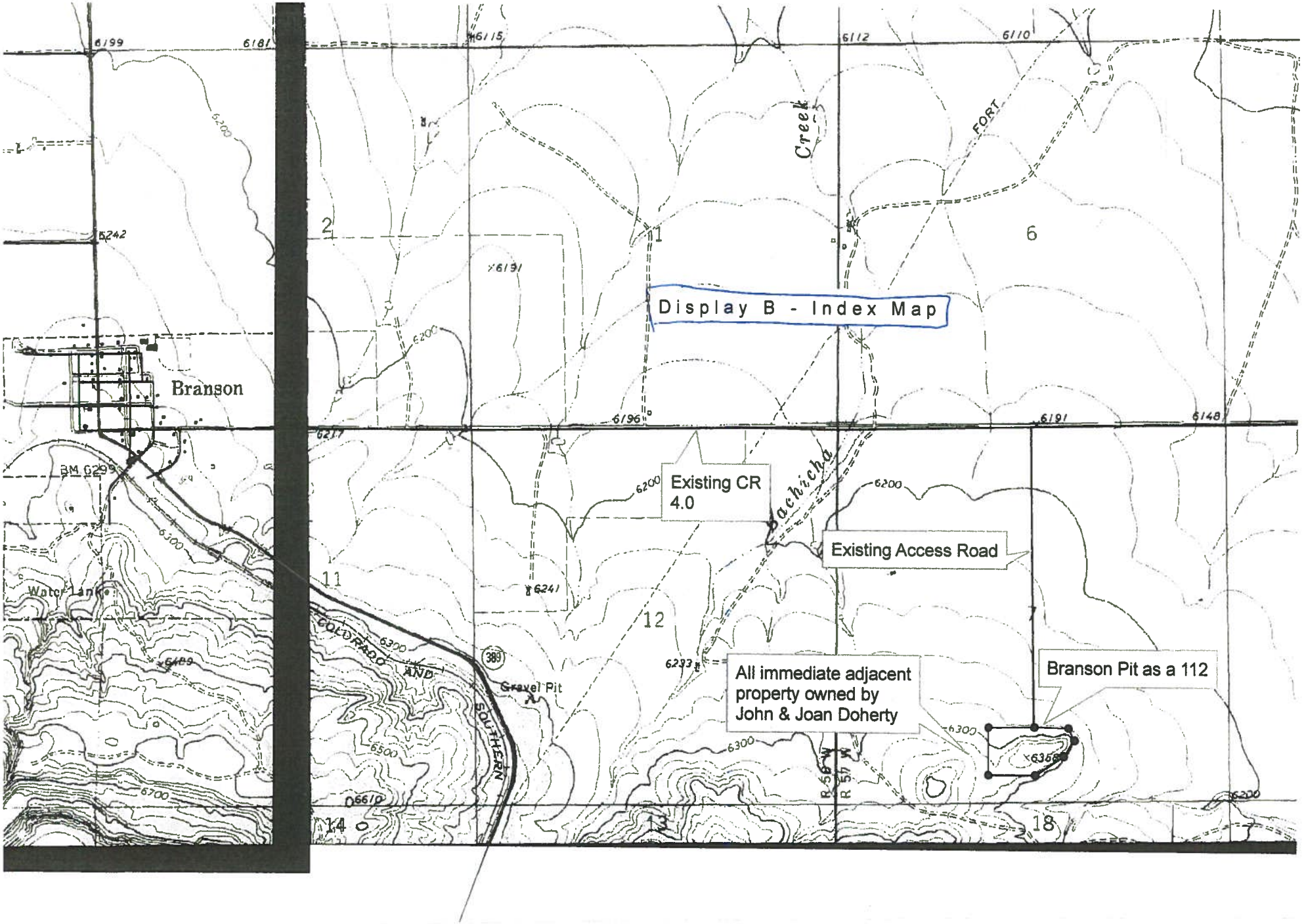
see Display J copy of signed delivery notice

6.4.19 EXHIBIT S – Permanent Man-Made Structures

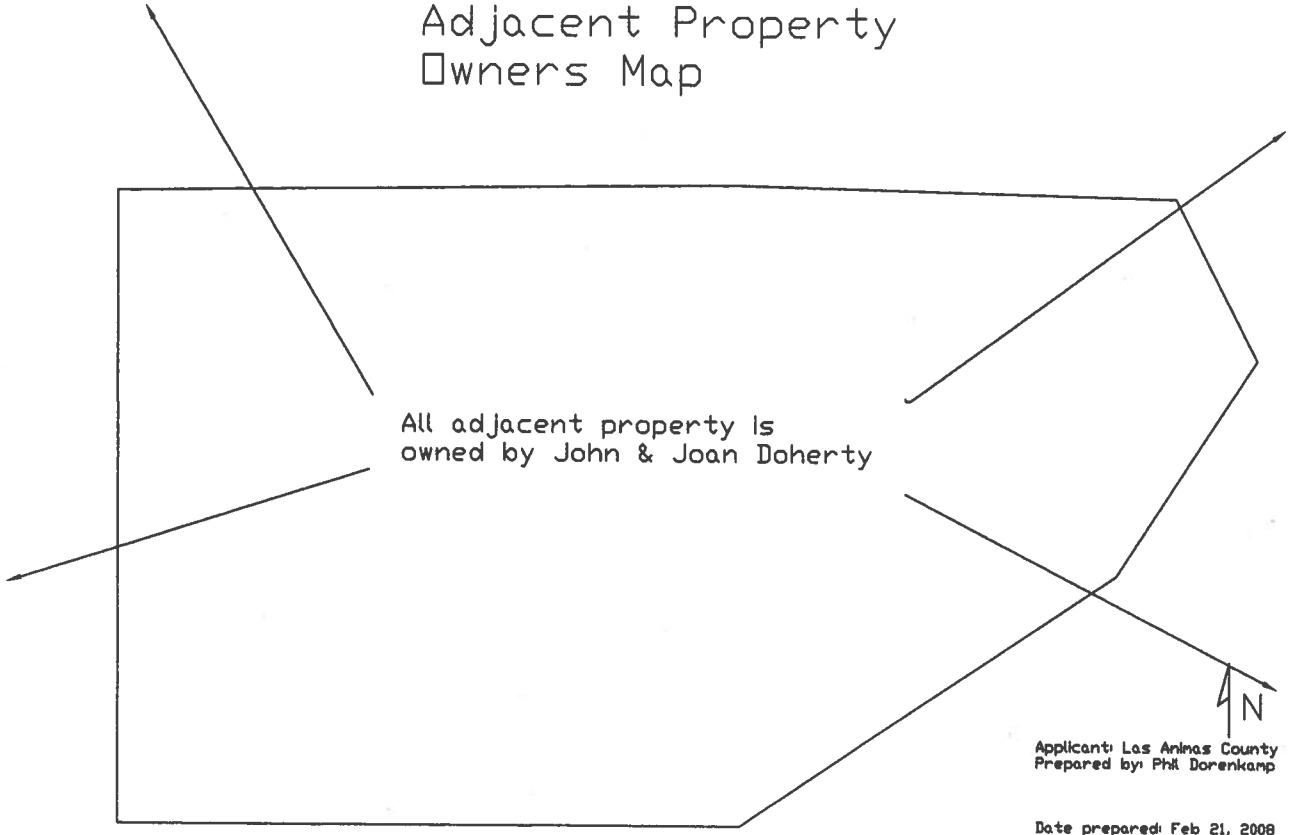
a. provide a notarized agreement for structure damage; see Display K, formally EXHIBIT "L", copy of agreement with Joan L. Doherty

Display A - Legal Description
UTM WGS84 13S




Display B - Index Map
Branson
Existing CR 4.0
Existing Access Road
All immediate adjacent property owned by John & Joan Doherty
Branson Pit as a 112
Gravel Pit
Water Tank
BM 6299
Creek
FORT
SOUTHERN
COLORADO AND
6199
6181
6115
6112
6110
5242
6191
6200
6196
6191
6148
6217
6241
6233
6300
6500
6700
6610
6368
R 50 W
R 51 W
2
11
6
12
13
14
18
389

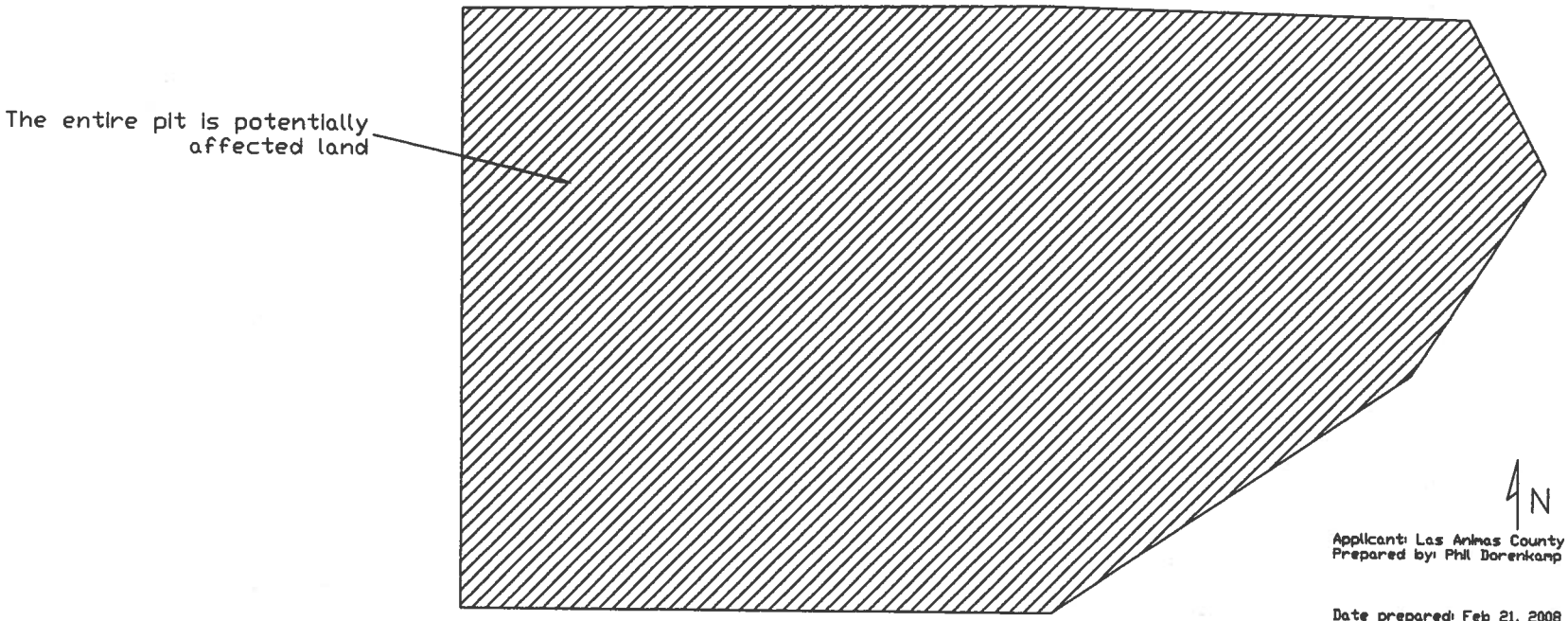
Display C-a
Adjacent Property
Owners Map



Applicant: Las Animas County
Prepared by: Phil Dorenkamp

Date prepared: Feb 21, 2008
Scale: 1" = 200'

Display C-d
Affected
Lands Area



Applicant: Las Animas County
Prepared by: Phil Borenkamp

Date prepared: Feb 21, 2008
Scale: 1" = 200'

DISPLAY C-e

BRANSON GRAVEL PIT
LAS ANIMAS COUNTY

I. Location Map

II. Soil Information

SCS-CPA-015
12-85

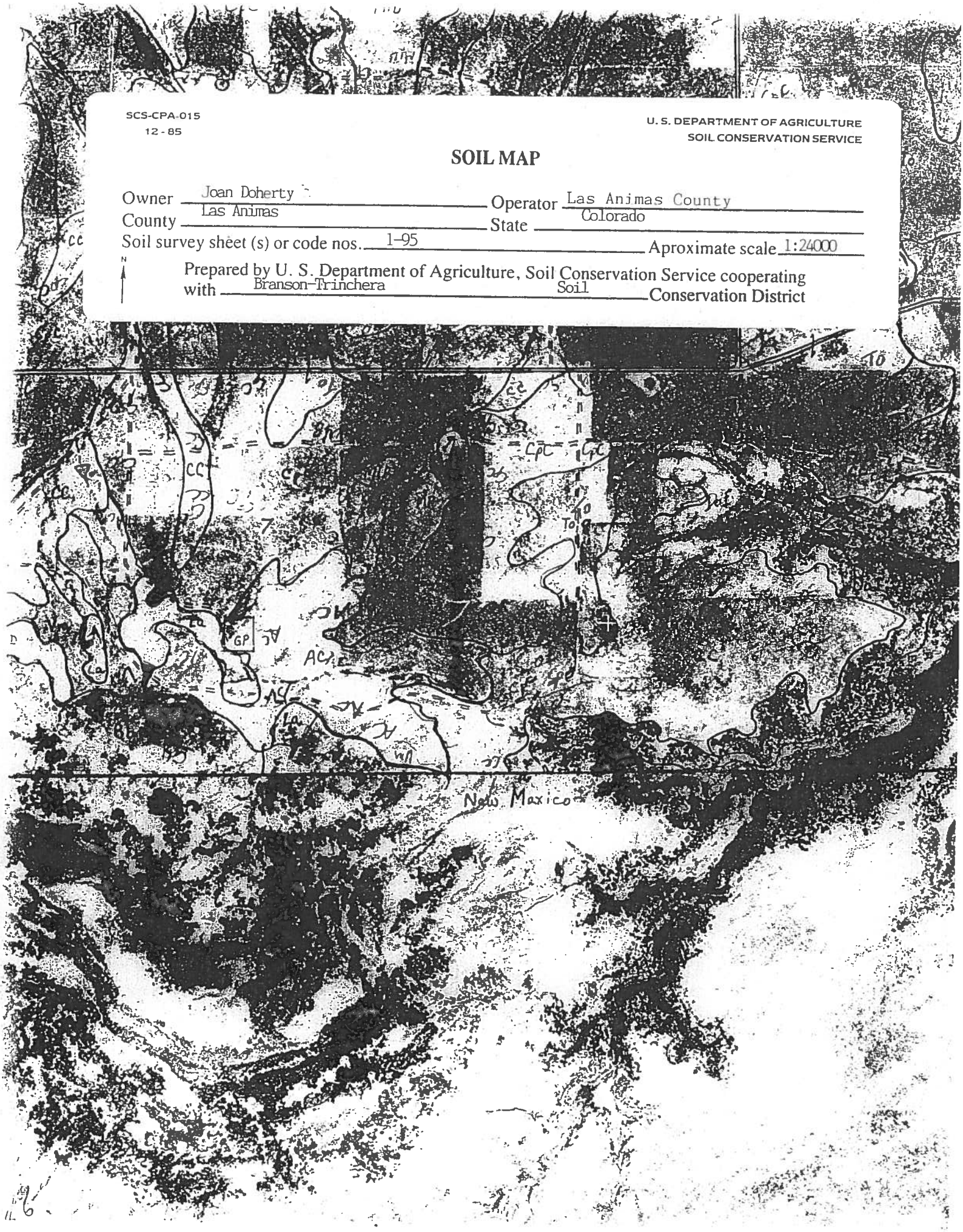
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

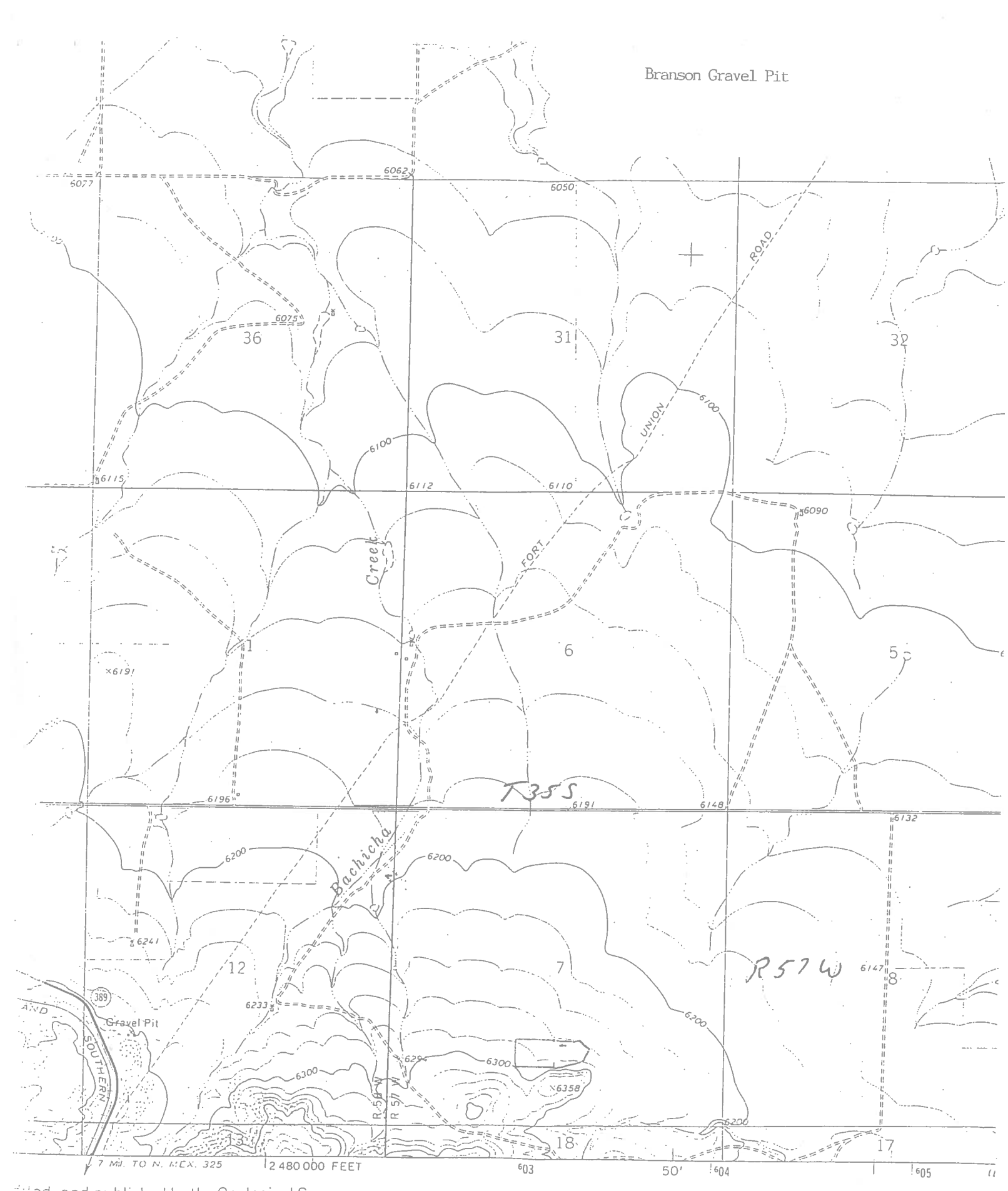
SOIL MAP

Owner Joan Doherty Operator Las Animas County
County Las Animas State Colorado
Soil survey sheet (s) or code nos. 1-95 Aproximate scale 1:24000

N

Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating with Branson-Trinchera Soil Conservation District





...ited, and published by the Geological Survey

...GS and NOS/NOAA

...w photogrammetric methods from aerial
...taken 1971. Field checked 1972

...d 10,000-foot grid ticks: Colorado

GN MN
0°43' 12°
213 MILS

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1000 0 1000 2000
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AC =Ayon-Capulin complex, 3 to 25 percent slopes

Setting

Landform: Mesas

Position on landscape: Mesa side slopes, mesa tops, drainageways

Elevation: 5,800 to 7,500 feet

Native plants: Grass, scattered shrubs and trees

Air temperature: 50 to 52 degrees F

Annual precipitation: 15 to 17 inches

Frost-free period: 125 to 140 days

Composition

Ayon soil and similar inclusions: 50 percent

Capulin soil and similar inclusions: 50 percent

Typical Profile

Ayon

Surface layer:

0 to 10 inches=very cobbly loam

Subsurface layer:

10 to 32 inches=very gravelly loam

Substratum:

32 to 60 inches=extremely gravelly loam

Capulin

Surface layer:

0 to 7 inches=loam

Subsoil:

7 to 30 inches=clay loam, loam

Substratum:

30 to 60 inches=gravelly loam

Soil Properties and Qualities

Ayon

Parent material: Alluvium and colluvium derived from basalt

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low

Potential rooting depth: 60 inches

Runoff: Medium

Hazard of water erosion: Moderate to very high

Carbonates: Throughout the profile

Capulin

Parent material: Colluvium and residuum derived from basalt

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate in the surface layer; moderately slow in the subsoil

Available water capacity: High

Potential rooting depth: 60 inches

Runoff: Medium

Hazard of water erosion: Moderate to very high

Carbonates: 5 to 20 inches

Contrasting Inclusions

Soils that are less than 20 inches over shale

Major Current Uses

Rangeland

Major Management Factors

Rangeland
Suitability: Fair
Soil-related factors on the Ayon soil:
Available water capacity
Slope
Stoniness
Water erosion
Soil-related factors on the Capulin soil:
Slope
Water erosion
Dominant vegetation in the potential plant community:
Blue grama, western wheatgrass, sideoats grama, big bluestem, little bluestem, true mountainmahogany, Gambel oak, juniper, squirreltail
Annual production of air-dry vegetation: 1,100 pounds per acre
Management considerations:
Range seeding
Proper grazing

Windbreaks
Soil-related factors: Large stones, water erosion
Suitability: Poor
Management considerations:
Windbreaks only in areas that are not stony
Trees suitable are eastern redcedar, Rocky Mountain juniper
Shrubs suitable are mountainmahogany, Gambel oak

Urban Development
Soil-related factors:
Steepness of slope, stoniness
Suitability as a site for buildings: Fair
Management considerations:
Water erosion should be controlled on steeper slopes
Stoniness in some areas can interfere with building construction

Interpretive Groups
Land capability subclass:
VIIs, nonirrigated
Range site for the Ayon soil: Cobbly Foothills #Z13
Range site for the Capulin soil: Loamy Plains #4
MLRA site: 70

CpC =Capulin loam, 1 to 6 percent slopes

Setting

Landform: Basalt capped mesas, foothills
Position on landscape: Foot slopes, toe slopes
Elevation: 5,000 to 7,000 feet
Native plants: Grass
Air temperature: 50 to 52 degrees F
Annual precipitation: 15 to 17 inches
Frost-free period: 125 to 140 days

Composition

Capulin soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches=loam
Subsoil:
8 to 38 inches=clay loam
Substratum:
38 to 60 inches=gravelly loam

Soil Properties and Qualities

Parent material: Alluvium
Depth class: Deep, very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Potential rooting depth: 40 to 60 or more inches
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Carbonates: 5 to 20 inches

Contrasting Inclusions

Soils that average more than 35 percent clay in the profile
Soils that average more than 35 percent coarse fragments in the profile
Soils that have bedrock at depths of 20 to 40 inches

Major Current Uses

Rangeland, nonirrigated cropland

Major Management Factors

Cropland

Soil-related factors: Water erosion, wind erosion
Suitability: Fair
Management considerations:
Control water erosion on steeper slopes
Terraces
Maintain crop residue
Cropping system

Windbreaks

Soil-related factors: Water erosion
Suitability: Good
Management considerations:
Supplemental irrigation may be needed during dry periods
Trees suitable are Siberian elm, Rocky Mountain juniper, Ponderosa pine, Russian-olive
Shrubs suitable are lilac, American plum

Urban Development

Soil-related factors: Moderate shrink-swell, steepness of slope
Suitability as a site for buildings: Good
Management considerations:
Low shrink-swell material should be used for backfill
Excavation can expose bedrock in some areas

Rangeland

Suitability: Good
Dominant vegetation in the potential plant community: blue grama, western wheatgrass,

bottlebrush squirreltail, needleandthread, sideoats grama
Annual production of air-dry vegetation: 1,200 pounds per acre
Management considerations:
Range seeding if in poor condition
Proper grazing use

Interpretive Groups
Land capability subclass: IVe, nonirrigated
Range site: Loamy Plains #2
MLRA: 70

La =Laporte loam, 3 to 15 percent slopes

Setting

Landform: Foothills
Position on landscape: Hilltops
Elevation: 5,500 to 6,500 feet
Native plants: Grass
Air temperature: 50 to 52 degrees F
Annual precipitation: 15 to 17 inches
Frost-free period: 120 to 140 days

Composition

Laporte soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches=loam
Substratum:
8 to 18 inches=channery loam
Bedrock:
18 inches=hard limestone

Soil Properties and Qualities

Parent material: Residuum
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Potential rooting depth: 5 to 20 inches
Runoff: Medium to rapid
Hazard of water erosion: Moderate to very high
Hazard of wind erosion: Slight
Carbonates: Throughout the profile

Contrasting Inclusions

Soils that have bedrock from 20 to 40 inches deep
Rock outcrop
Soils that have a light surface and are less than 20 inches deep over bedrock

Major Current Uses

Rangeland, wildlife habitat

Major Management Factors

Windbreaks

Soil-related factors: Shallow depth to bedrock, available water capacity, water erosion, wind erosion
Suitability: Poor
Management considerations: This unit should not be used for windbreaks

Urban Development

Soil-related factors: Water erosion, wind erosion, steepness of slopes, shallow depth to bedrock
Suitability as a site for buildings: Poor
Management considerations: Steep slopes and depth to bedrock limit the use of septic systems and building construction sites
Corrosive for steel and concrete

Rangeland

Suitability: Poor
Dominant vegetation in the potential plant community: Big bluestem, True Mountainmahogany, sideoats Grama, needleandthread, pinyon and juniper trees
Annual production of air-dry vegetation: 400 pounds per acre
Management considerations:
Proper grazing use
Poorly suited for range seeding
Brush management improves deteriorated areas of rangeland

Interpretive Groups
Land capability subclass: VIIs, nonirrigated
Range site: Shallow Foothills #204
MLRA: 70

USDA, Soil Conservation Service
Section II-E

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TRINIDAD, COLORADO FIELD OFFICE

Loamy Plains #4
Range Site Description
MLRA 49 & 70
July 1981

A. PHYSICAL CHARACTERISTICS

1. Physiographic Features

Topography is nearly level to gently rolling. Slopes are not oriented in any definable direction and are generally less than ten percent but may go slightly steeper. Elevation ranges from 5000 to 6500 feet (1524 to 1981 meters).

2. Climatic Features

a. Precipitation averages 14 to 16 inches (36 to 41 cm) annually, with 25 to 50% of it coming as snow or early spring rains. Amount of snowfall averages 54 inches (137 cm).

b. Optimum growing season of native plants is April 15 to May for cool season plants and May for warm season plants. High intensity summer storms followed by hot dry windy periods are a common occurrence. The average annual temperature is 52°F (11°C) with highest temperatures occurring during June, July and August. Length of growing season is 159-181 days with average frost dates occurring May 9 and October 8. There are 27 days that exceed 90°F (32°C) and 140 days that are below 32°F (0°C).

3. Native (Climax Potential) Vegetation

a. The plant community is about 90-95 percent grasses, 5 to 10 percent forbs and 5 to 10 percent shrubs. Blue grama, western wheatgrass, bottlebrush squirreltail, galleta, Junegrass and side-oats grama, make up most of the plant community which total 60 to 80%. Grasses such as buffalograss, three-awn, New Mexico needlegrass, wolftail, needle-and-thread, sand dropseed and shrubs such as winterfat and fringed sage are secondary in the community. Small amounts of ring muhly, plains prickly pear, Missouri ball cactus, slimflower scurfpea, heath aster, dotted gayfeather, silky sophora, silver bluestem, scarlet globemallow, curlycup gumweed, ironplant goldenweed, upright prairieclover, and wavy-leaf thistle grow in small amounts in scattered distribution. Other shrubs such as small soapweed, green plume rabbitbrush, walkingstick cholla, broom snakeweed, and fourwing saltbush, occur in the community. An occasional one-seed juniper may occupy this site if adjacent to a break site.

c. If ecological regression is cattle induced, grasses such as western wheatgrass, sideoats grama, New Mexico feathergrass, needleandthread and Indian ricegrass will disappear from the plant community. Galleta, blue grama will increase. If regression is sheep induced heath aster, scarler globemallow, fourwing saltbush, fringed sagebrush, winterfat, green plume rabbitbrush would be reduced. With further deterioration of this site, galleta and blue grama will disappear and will be replaced by ring muhly, sand dropseed and red three-awn. These grasses with continued destructive grazing practices will be invaded with little barley, tumblegrass cheatgrass and hairy tridens. The brush species that increase as range conditions deteriorate are broom snakeweeed, fringed sagebrush, walkingstick cholla, plains pricklypear, curlycup gumweed. Matrimonyvine is an introduced species that occurs in swales where extra water is available from runoff of adjacent terrain.

d. Vegetation density[1/] is approximately 20-25 percent.

4. Annual Production

If the range is in excellent condition, the approximate total annual production (air dry) ranges are:

Favorable Years	1600 lb/ac	1814 kg/ha
Normal Years	1200 lb/ac	1360 kg/ha
Unfavorable Years	600 lb/ac	680 kg/ha

Of this production 0 to 5 percent will likely be unpalatable to livestock.

5. Soils

a. The soils of this site are deep, well drained and occur on uplands. The Baca soils are formed in loess derived dominantly from sedimentary rock. The Capulin soils are on and near basalt capped mesas. The surface soils are silt loams and loams, respectively. The Baca subsoils and substratum is silty clay loam. The Capulin subsoil is a clay loam and the substratum is a gravelly loam. These soils are mildly alkaline to moderately alkaline and calcareous below 12 inches (30 cm) depth.

Torreon soils are formed over basalt and similar to Capulin soils except with more clayey subsoils.

Permeability is moderate to moderately slow with a high available water capacity. Runoff is slow and the hazard of water erosion is high to very high on the Baca soils when the vegetation is depleted. The runoff on the Capulin is medium with moderate water erosion hazard.

Both these soils are better than 60 inches (1.5 m) deep.

1/ Vegetation density = basal area. This is the area of ground surface covered by the stem or stems. Usually, this is measured 1 inch (2.54 cm) above the soil in contrast to the full spread of perennial foliage.

4. Recreation and Natural Beauty

This site has fair to poor aesthetic appeal and natural beauty. During exceptional rainfall years, a profusion of flowering plants appear.

5. Threatened and Endangered Plants and Animals

Blackfooted Ferret
Peregrine Falcon

6. Major Poisonous Plants to Livestock

Common Name	Scientific Name	Dangerous Season	Animals Affected
threadleaf groundsel	Senecio longilobus	early spring when forage is short or on over-grazed ranges.	cattle & horses. Normally will not affect sheep.

Effect Upon Animals

Symptoms are progressive and effects are cumulative.[3/] Losses are sporadic. Degeneration of the liver results. Depression, weakness, diarrhea, darkly stained urine may be observed. Animals may die quickly or wander aimlessly.

Common Name	Scientific Name	Dangerous Season	Animals Affected
broom snakeweed	Xanthocephalum sarothrae	when forage is scarce	cattle & sheep

Effect Upon Animals

Poisoining is not common but will occur on overgrazed ranges. Causes abortion in cattle or may produce weak underweight calves. Losses are sporadic and will occur when 10 to 20 percent of the body weight of green material is consumed in 1/2 to 20 weeks.

Other plants that may cause poisoning but are not usually eaten are silky sophora which the seeds contain poisonous alkaloids and matrimonyvine which contains an alkaloid like hyossyamine.

3/ "Cumulative" poisoning effect increases in severity by successive additions of the poisonous plant. Symptoms appear weeks or months after poisonous plants are first eaten.

10. Vegetation Palatability per Animal Class 4/

Plant Symbol	Common Name	Scientific Name	Animal Classes 5/ C	S	H	E	D	A	G/B	S/B	S/M
			Animal Preference 6/								
Grass & Grasslike Plants											
BOGR2	blue grama	Bouteloua gracilis	H	H	H	M	M	M	M	H	M
SIHY	bottlebrush squirreltail	Sitanion hystrix (2)	M	M	M	M	M	M	M	M	M
BUDA	buffalograss	Buchloe dactyloides	H	H	H	L	L	M	M	M	M
HIJA	galleta	Hilaria jamesii	M	M	H	M	L	L	L	L	M
ORHY	Indian ricegrass	Oryzopsis hymenoides	H	H	H	H	M	M	M	H	H
STCO4	needleandthread	Stipa comata	H	M	H	H	M	M	L	M	M
STNE2	New Mexico feathergrass	Stipa neomexicana	M	L	M	L	L	L	L	L	M
KOCR	prairie junegrass	Koeleria cristata	H	H	H	M	M	M	M	M	M
ARLO3	red threeawn	Aristida longiseta (2)	L	L	L	L	L	L	M	M	M
MUTO2	ring muhly	Muhlenbergia torreyi	L	L	L	L	L	L	L	M	M
SPCR	sand dropseed	Sporobolus cryptandrus	M	M	M	L	L	L	H	H	H
BOCU	sideoats grama	Bouteloua curtipendula	H	H	H	M	M	M	M	M	M
ANSA	silver bluestem	Andropogon saccharoides	H	M	H	L	M	L	M	M	M
AGSM	western wheatgrass	Agropyron smithii	H	M	H	M	M	M	L	M	M
LYPH	wolftail	Lycurus phleoides	M	L	M	L	L	L	M	M	M
Forbs											
GRSQ	curlycup gumweed	Grindelia squarrosa (4)	L	L	L	L	L	L	L	L	L
LIPU	dotted gayfeather	Liatris punctata	L	L	L	L	L	L	L	L	L
ASER3	heath aster	Aster ericoides	L	M	L	M	M	M	M	M	M
HASP2	ironplant goldenweed	Haplopappus spinulosus	L	L	L	L	M	M	L	L	L
DAPU4*	purple prairieclover	Dalea purpurea (2)	L	L	L	L	L	L	L	L	L
SPCO	scarlet globemallow	Sphaeralcea coccinea (3)	M	M	M	H	H	H	M	H	H
SOSE	silky sophora	Sophora nuttalliana	L	M	L	L	M	M	M	M	M
PSTE3	slimflower scurfpea	Psoralea tenuiflora	L	M	L	L	L	M	M	M	L
SELO	threadleaf groundsel	Senecio longilobus	M	M	L	M	M	M	L	M	M
RACO3	upright (Mexican Hat) prairie coneflower	Ratibida columnifera	L	M	L	L	M	M	M	M	M
ASPE5	narrowleaf poisonvetch	Astragalus pectinatus	L	L	L	L	L	L	L	L	L
Shrubs											
XASA*	broom snakeweed	Xanthocephalum sarothrae	L	L	L	L	L	M	L	L	L
ATCA2	fourwing saltbush	Atriplex canescens	H	H	M	H	H	H	H	H	H
ARFR4	fringed sagebrush	Artemisia frigida	M	H	M	H	H	H	M	M	M
CHNAG2*	green plume rabbitbrush	Chrysothamnos nauseosus (6) graveolens	M	M	M	H	H	M	M	M	H
COMI4*	Missouri ball cactus	Coryphantha missouriensis	L	L	L	L	L	L	L	L	L
OPPO	plains pricklypear	Opuntia polyacantha (4)	L	L	L	L	L	M	M	M	H
YUGL	small soapweed	Yucca glauca	M	M	M	M	M	M	H	H	H
OPIM*	walkingstick cholla	Opuntia imbricata	L	L	L	L	L	L	L	L	L
CELA2*	winterfat	Ceratoides lanata	H	H	H	H	H	M	M	M	H

Note: *Symbol not listed in National List of Scientific Plant Names.

4/ Vegetative palatability per animal class is based on the attractiveness of the plant to animals as forage. Grazing preference changes from time to time and place to place, depending on the animal class, plant palatability and nutritive value, stage of growth, and season of use.

5/ Animal class symbols:
- C - Cows
- S - Sheep
- H - Horses
- E - Elk
- D - Deer
- A - Antelope
- G/B - Upland Gamebirds
- S/B - Songbirds
- S/M - Small Mammals

6/ Animal preference symbols:
- H - High
- M - Medium
- L - Low

USDA, Soil Conservation Service
Section II-E

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TRINIDAD, COLORADO FIELD OFFICE

Shallow Foothill #204
Eco Site Description
MLRA 49A and 49B
July 1984

A. PHYSICAL CHARACTERISTICS

1. Physiographic Features

Topography is ridges, hog-backs, mesas, and steep slopes. Slope is often east facing but can be in any direction. Slope varies from nearly level to 45 percent. Elevation ranges from 5,200 to 7,000 feet (1,585 to 2,134 meters).

2. Climatic Features

a. Precipitation averages 13 to 17 inches (35-43 cm) annually with fluctuations from year to year. From 65 to 70 percent of the precipitation is received between May and October.

A typical average precipitation pattern follows:

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
.42	.58	.92	1.64	2.14	1.82	2.42	2.16	1.46	.94	.64	.48

b. Average annual temperature is approximately 49° F (9.4° c). Length of the frost free period averages 120 to 150 days and occurs from the middle of May till the end of September. High intensity summer storms followed by hot dry periods are common.

3. Native (Climax Potential) Vegetation

a. The potential plant community is about 70 to 80 percent grasses, 10 to 20 percent forbs, and 15 to 30 percent shrubs and trees. This site gives a browse type vegetation appearance. True Mountain mahogany, big bluestem, little bluestem, sideoats grama, yellow Indiangrass, and Griffith wheatgrass are the dominant plants in the potential plant community. Needleandthread, mountain muhly, Sandberg bluegrass, blue grama, Junegrass, and Indian ricegrass are also present. Numerous forbs and other shrubs are present in small amounts. Pinyon pine, Rocky Mountain juniper, and ponderosa pine are also found on this site in small amounts.

b. Relative percentage of total plant community by weight, air-dry:

Symbol	Common Name	Scientific Name	Percent
Grasses and Grasslike Plants			
ANGE	big bluestem	Andropogon gerardii	20-30
BOGR2	blue grama	Bouteloua gracilis	T-5
AGALG*	Griffith wheatgrass	Agropyron albicans (2) griffithsii	10-20
ORHY	Indian ricegrass	Oryzopsis hymenoides	T-3
SCSC*	little bluestem	Schizachyrium scoparium	10-20
MUMO	mountain muhly	Muhlenbergia montana	5-10
STCO4	needleandthread	Stipa comata	5-10
STNE2	New Mexico feathergrass	Stipa neomexicana	T-7
KOCR	prairie junegrass	Koeleria cristata	T-4
POSA12*	Sandberg bluegrass	Poa sandbergii	T-5
STSC2	Scribner needlegrass	Stipa scribneri	0-3
BOCU	sideoats grama	Bouteloua curtipendula	10-20
PAVI2	switchgrass	Panicum virgatum	T-5
SONU2	yellow Indiangrass	Sorghastrum nutans	10-20
	other native grasses		T-5
Forbs			
ASAS	antelopehorn milkweed	Asclepias asperula	T-1
OECO2	cut-leaf evening primrose	oenothera coronopifolia	T-1
LIPU	dotted grayfeather	Liatris punctata	T-1
ASDR3	Drummond milkvetch	Astragalus drummondii	T-1
DEGE2	Geyer larkspur	Delphinium geyeri	T-1
HEVI4*	hairy goldaster	Heterotheca villosa	T-1
ASER3	heath aster	Aster ericoides	T-1
CRJA2	James cryptantha	Cryptantha jamesii	T-1
LILE3*	Lewis flax	Linum lewisii	T-1
ARLU	Louisiana sagebrush	Artemisia ludoviciana	T-1
ERPU2	low fleabane	Erigeron pumilus (2)	T-1
LUPL	Nebraska lupine	Lupinus plattensis	T-1
DENU2	Nutall larkspur	Delphinium nutallianum	T-1
PEVI4	wandbloom Penstemon	Penstemon virgatus	T-1
ERUM	sulfur buckwheat	Eriogonum umbellatum (5)	T-1
ALTE	textile onion	Allium textile	T-1
SEMU4	variable senecio	Senecio mutabilis	T-1
ERAL4	winged buckwheat	Eriogonum alatum	T-1
	other native forbs		T-5
Shrubs and Trees			
PRVI	common chokecherry	Prunus virginiana	T-2
ARFR4	fringed sagebrush	Artemisia frigida	T-2
JUMO	oneseed juniper	Juniperus monosperma	2-5
PIED	pinyon	Pinus edulis	5-10
OPPO	plains pricklypear	Opuntia polyacantha (4)	T-1
PIPO	ponderosa pine	Pinus ponderosa	T-1
JUSC2	Rocky Mountain juniper	Juniperus scopulorum	3-7
RHTR	skunkbush sumac	Rhus trilobata (4)	T-3
CEMO2	true mountain mahogany	Cercocarpus montanus	15-25
RICE	wax currant	Ribes cereum	T-2
	other native shrubs		1-2

c. If ecological retrogression is cattle-induced, plants such as big bluestem, yellow Indiangrass, sideoats grama, mountain muhly, switchgrass, and Griffith wheatgrass will decrease or disappear from the plant community. Many forbs and shrubs will increase. If retrogression is sheep induced mountain mahogany and many forbs will decrease and many grasses will increase. With further deterioration, cheatgrass, Japanese brome, and other annuals invade the site.

d. Vegetation density[1/] is approximately 10 percent.

4. Annual Production

If the range is in excellent condition, the approximate total annual production (air-dry) is:

favorable years	600 pounds/Ac	672 Kg/Ha
normal years	450 pounds/Ac	504 Kg/Ha
unfavorable years	300 pounds/Ac	336 Kg/Ha

Of this production, 5 to 15 percent will likely be unpalatable to livestock.

5. Soils

a. The soils of this site are shallow and well drained. They occur on upland ridges and formed primarily from sandstones and limestones. Surface texture can vary from a stoney sandy loam to a loam.

Permeability is moderate. Available water capacity is low. Runoff is moderate to rapid and erosion can be severe if plant cover is destroyed.

b. Major soils associated with this site are:

Soil Unit

Baller stony sandy loam
Bernal sandy loam
Fortwingate loam
Laport loam
Penrose channery loam
Purner fine sandy loam
Rizozo loam
Stroupe extremely stony loam
Tarryall gravelly loam

1/ Vegetation density = basal area. This is the area of ground surface covered by the perennial stem or stems. Usually, this is measured one inch (2.54 cm) above the soil in contrast to the full spread of perennial foliage.

B. MAJOR USES AND INTERPRETATIONS FOR:

1. Grazing

This site provides good forage for cattle and horses throughout the year. It provides excellent forage for sheep, deer, and antelope. Distribution of domestic livestock can be a problem on this site due to the slopes, shrubs, and rocks. Cattle in particular and all domestic livestock in general tend to graze the lower slopes, leaving the upper slopes lightly grazed or ungrazed. Cattle poisoning in the spring and early summer can be a problem if the area has a larger than normal amount of larkspur. Larkspur seems to increase in abundance with overuse of the site.

The animal forage preference changes as the growing season progresses. Griffith wheatgrass, needleandthread, and several other cool season grasses provide good spring and early summer grazing. Big bluestem, yellow Indiangrass, sideoats grama, little bluestem, and several other warm season plants provide good summer forage. True mountain mahogany provides good browse through the fall and winter. It is important that a proper stocking rate and planned deferment be scheduled so these plants are not grazed out. Reestablishment of vegetation is difficult on this site due to the slope, rocks, and shallow soil. The season of use, climate, kind of grazing animal, past grazing use, and plant composition will directly influence animal preference and performance.

2. Wildlife

This site has a high value for deer and moderate value for cottontail, coyote, antelope, and various raptors.

3. Watershed (Hydrologic Interpretation)

Soils of this site are grouped into "D" and "C" hydrologic groups as outlined in the "Soils of Colorado Loss Factors and Erodibility Hydrologic Groupings 1979" handbook. Field investigations are needed to determine hydrologic cover and curve numbers. The hydrologic curve number for group D soils is about 80 and group C soils is about 74, where the hydrologic conditions are good, as shown in "Peak Flows in Colorado" handbook.

Refer to SCS National Engineering Handbook, Section 4, to determine runoff quantities from the curves.

4. Recreation and Natural Beauty

Due to the break in physiographic features, the site has high aesthetic appeal and natural beauty. It is fair to good for hiking and excellent for deer hunting.

5. Threatened and Endangered Plants and Animals

Gaura neomexicana coloradoensis or Colorado butterfly weed has been reported as endangered in Boulder, Douglas, Jefferson, Larimer, and Weld counties. However, its occurrence on this range site has not been proven.

The buffalo (bison) are gone, except for a few commercial herds.

The black-footed ferret may have been associated with this site or adjacent sites.

6. Plants That May Cause Poisoning To Livestock

Common Name	Scientific Name	Season Dangerous	Animals Affected
Geyer larkspur Nuttall Larkspur	*Delphinium geyeri* *Delphinium nuttallianum*	Spring and early summer when other green forage is not available	Cattle are most susceptible; horses and sheep are occasionally affected

Effect and symptoms

Poisoning is cumulative. Symptoms include loss of appetite, general uneasiness, excessive salivation, frequent swallowing, twitching muscles, rapid irregular heart beat, respiratory paralysis, and staggering gait. In advanced cases the animal falls and lies with feet extended more or less rigidly. Poisoned animals are constipated and severe cases are nauseated and some are also bloated.

Common Name	Scientific Name	Season Dangerous	Animals Affected
common chokecherry	*Prunus virginiana*	spring and early summer when leaves contain a large amount of toxin during periods of short forage, freezing weather	sheep-cattle

7. Location of Typical Examples of the Site

a. Weaver Ranch, N of Laporte, Larimer Co.
b. East face of first Hogback, W. of Lakewood, Jefferson Co.

8. Guide to Initial Stocking Rates 2/

Condition Class	Percent Climax Vegetation	AUM/ac	Ac/AUM	AUM/ha	ha/AUM
excellent	76-100	.14-.17	6-7	.35-.41	2.4-2.8
good	51-75	.11-.14	7-9	.27-.35	2.8-3.6
fair	26-50	.08-.11	9-12	.21-.27	3.6-4.9
poor	0-25	.08-	12+	.21-	4.9+

9. Field Offices

Canon City
Castle Rock
Colorado Springs
Cripple Creek
Fort Collins
Kiowa
Lakewood
Longmont
Pueblo
Simla
Trinidad
Walsenburg
Westcliffe

2/ Stocking rates are based on an average growing season. Based on 1200 pounds (540 kg) of forage (air-dry) per animal unit month. (This figure does not take into account the vegetation that disappears through trampling, small herbivores, etc., which amounts to approximately 7.9 pounds (3.6 kg) per day under normal conditions.)

10. Vegetation Palatability per Animal Class 3/

Plant Symbol	Common Name	Scientific Name	Animal Classes 4/ C	S	H	E	D	A	G/B	S/B	S/M
			Animal Preference 5/								
Shrubs											
PRVI	common chokecherry	Prunus virginiana	L	L	L	L	L	L	M	M	M
ARFR4	fringed sagebrush	Artemisia frigida	M	H	M	H	H	H	M	M	M
PIED	pinyon	Pinus edulis	L	L	L	L	L	L	H	H	H
OPPO	plains pricklypear	Opuntia polyacantha (4)	L	L	L	L	L	M	M	M	H
PIPO	ponderosa pine	Pinus ponderosa	L	L	L	L	L	L	H	H	H
JUSC2	Rocky Mountain juniper	Juniperus scopulorum	L	L	L	M	M	L	M	H	M
RHTR	skunkbush sumac	Rhus trilobata (4)	L	M	L	M	M	M	H	H	H
CEMO2	true mountainmahogany	Cercocarpus montanus	M	H	M	H	H	M	M	M	H
RICE	wax currant	Ribes cereum	M	H	M	H	H	M	H	H	H

Note: *Symbol not listed in National List of Scientific Plant Names.

3/ Vegetation palatability by animal class is based on the attractiveness of the plant to animals as forage. Grazing preference changes from time to time and place to place depending on the animal class, plant palatability and nutritive value, stage of growth and season of use.

4/ Animal class symbols:
C - Cows
S - Sheep
H - Horses
E - Elk
D - Deer
A - Antelope
G/B - Upland Gamebirds
S/B - Songbirds
S/M - Small Mammals

5/ Animal preference symbols:
H - High
M - Medium
L - Low

References

Gay, Charles W. and Don D. Dwyer. Poisonous Range Plants. Cooperative Extension Service, Circular 391, New Mexico State University, pp. 1-21, June 1967.

James, L. F. and et al. Plants Poisonous to Livestock in the Western States. Agriculture Information Bulletin No. 415, pp. 1-90, November 1980.

Durrell, L. W., Rue Jensen and Bruno Klinger. Poisonous and Injurious Plants in Colorado. Bulletin 412-A, pp. 1-88, June 1952.

United States Department of Agriculture. 22 Plants Poisonous to Livestock in the Western States. Agriculture Information No. 327, pp. 1-64, April 1968.

United States Department of Agriculture. Range Plant Handbook. U. S. Forest Service, pp GI-5157. 1937.

Date Received: 03/11/08

MINERAL PROGRAM
Project Management Assignment Sheet

Name: Berhan Keffelew Lead Specialist: BMK Date: 03/17/08

Project Title: (M-1997-100) Las Animas County/Branson Pit County: Las Animas
(If a permit action, permit no. first, then operation name. If "OTHER" project, first 6 letters of project title.) must be a unique set of letters or numbers.

Permit Type: NOI 110(c) 110(2) (111) (112) **(112c)**

Permit Action:

New (NW)	Warranty Reduction (SR)	Transfer (SO)
Amendment (AM)	Warranty Release (SL)	Temporary Cessation (TC)
Technical Revision (TR)	Acreage Release (AR)	Illegal (IL)
Conversion (CN)	Surety Forfeiture (SF)	File Review

Inspections: Aerial (AE) Complaint (CI) FWR (FI) Monitoring (MI) **Pre-Operation (PI)**

Due Date: 06/25/08 Project Priority: A **B** C Completed On: ___/___/___

Extended Due Date: ___/___/___ Reason: _____

Extended Due Date: ___/___/___ Reason: _____

Extended Due Date: ___/___/___ Reason: _____

Supervisor Comments: Due date dependent upon completeness.

Special Comments:

_____

_____

DATE PUBLIC COMMENT PERIOD ENDS: _____

DIVISION'S APPLICATION DECISION DATES:

DMG DATE STAMP: 03/11/08

RECEIVED: (Determined by Prog. Asst) ?????
(Formally known as complete or filed)

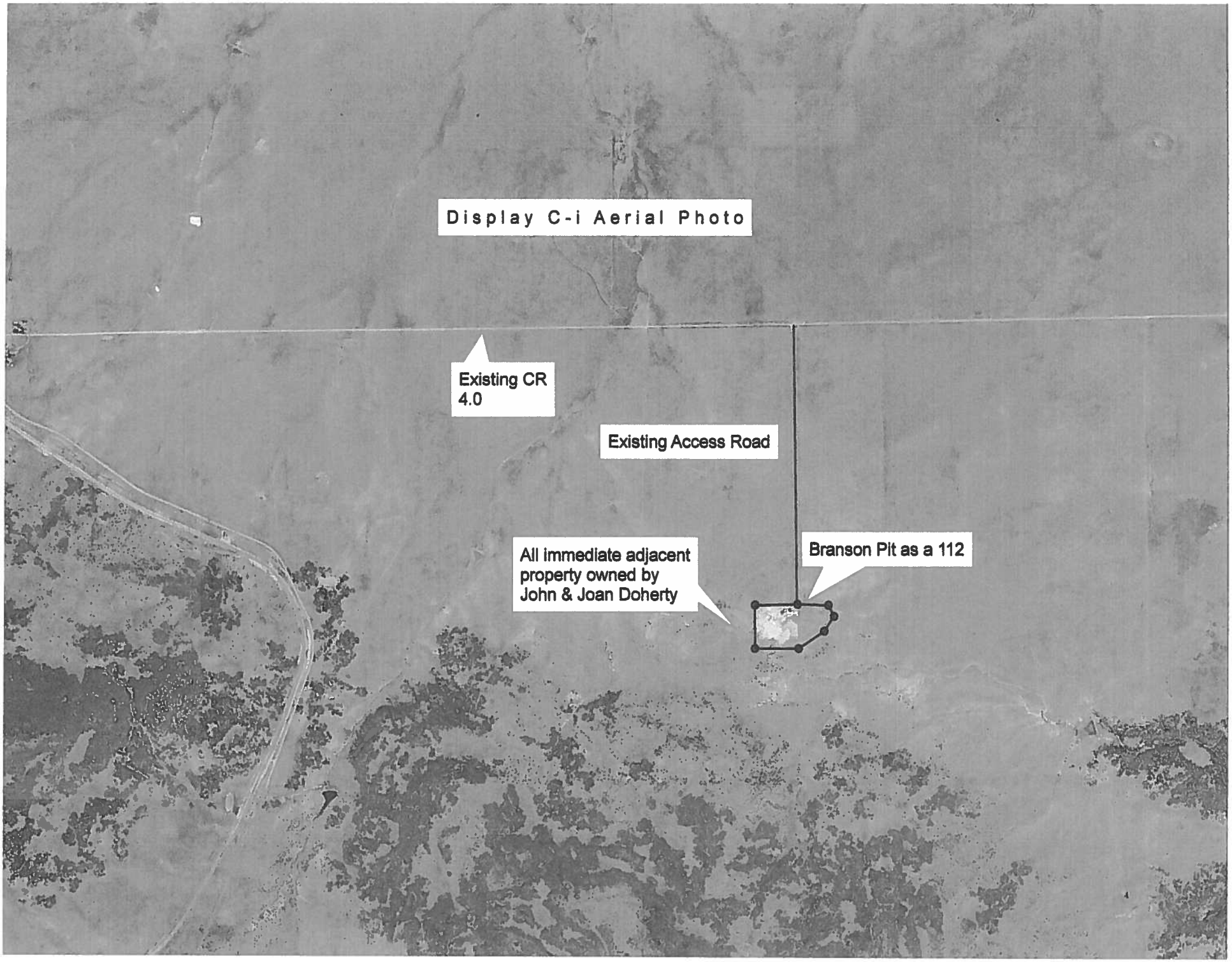
DIVISION'S DECISION DUE: 06/25/08??? Depends on completeness.
(Determined by Specialist)

APPLICATION HEARING DATES:

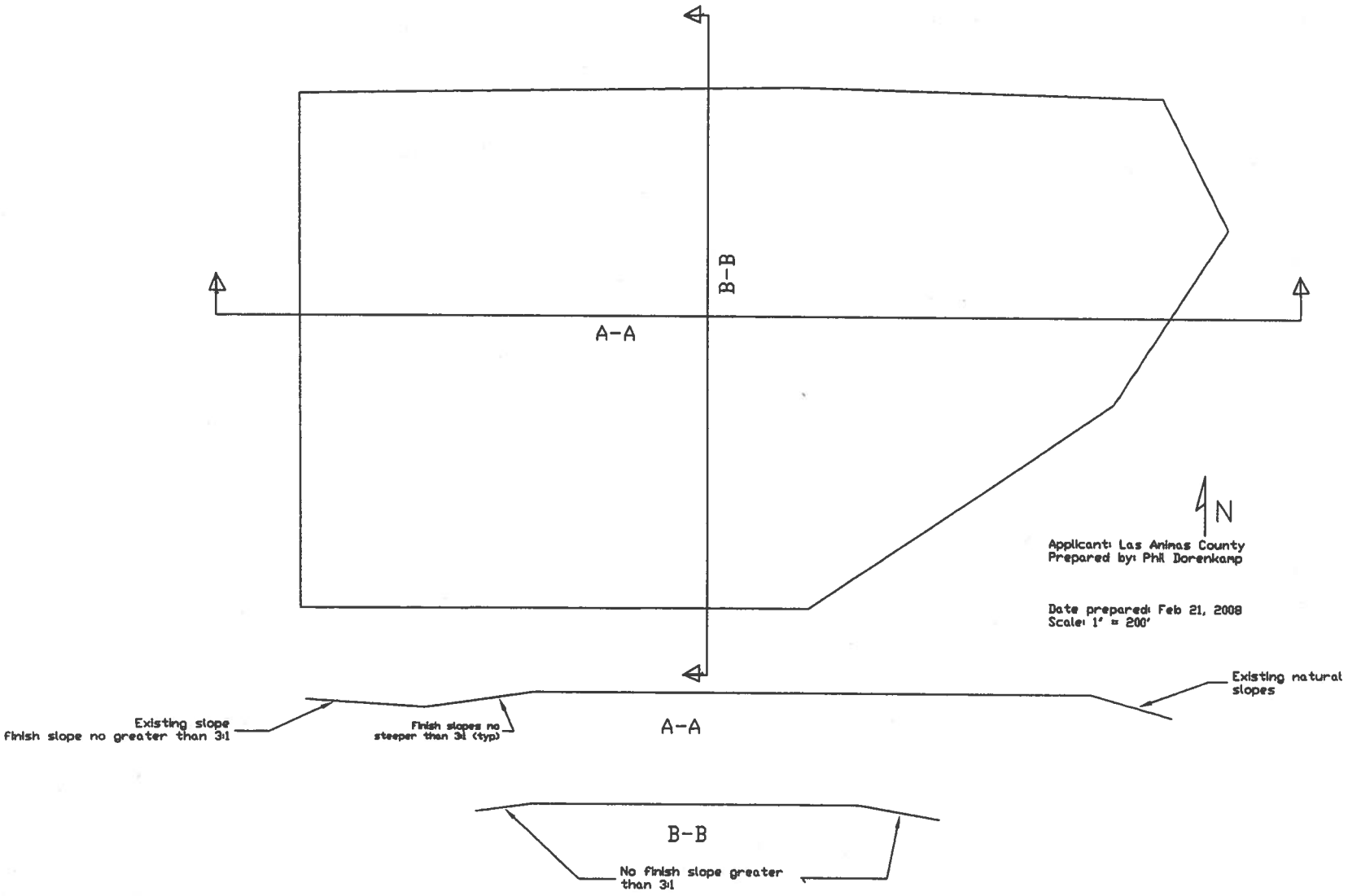
INFORMAL CONFERENCE: _____
(1.6.1(4)(b) notice, contact Loretta)

PRE-HEARING CONFERENCE: _____

BOARD HEARING: _____


Display C-i Aerial Photo
Existing CR 4.0
Existing Access Road
All immediate adjacent property owned by John & Joan Doherty
Branson Pit as a 112

Display F-a Post
Mining Contours Map



DISPLAY K

EXHIBIT "L"

The only permanent man made structure affected by the Branson Gravel Pit is a fence and Las Animas County hereby agrees that it will repair, replace or provide compensation for any damage to said fence.

LAS ANIMAS COUNTY

BY: Michael A Ossola
Michael A. Ossola, Chairman
Board of County Commissioners

ACCEPTED AND AGREED to this 5th day of December, 1997.

BY: Joan L. Doherty
Joan Louise Doherty

STATE OF COLORADO)
COUNTY OF LAS ANIMAS)

The foregoing instrument was acknowledged before me this 5th day of December, 1997, by Joan Louise Doherty.

Witness my hand and official seal Faye Cordova
Notary Public

My commission expires 12/7/2000

FAYE CORDOVA
18050 HWY 12
WESTON, CO 81091

Las Animas County Road and Bridge
2000 N. Linden Ave.
Trinidad, CO. 81082 (719) 846-2931 fax (719) 846-0434

February 25, 2008

Division of Minerals and Geology
1313 Sherman Street, Room 215
Denver, CO. 80203

RE: Branson Pit M-1997-100 Conversion Proof of Filing with Board of Supervisors of the Local Soil Conservation District

I hereby certify that on February 25, 2008 I personally hand delivered a copy of the conversion application for the Branson Pit to the Natural Resources Conservation Service, Attn: President of the Spanish Peaks/ Purgatoire Soil Conservation District, ~~422~~ 3590 East ~~1st~~ MAIN ST Street, Trinidad, CO. 81082 for review.

Sincerely,

Phil Dorenkamp
LAC R&B Supv...

Received a copy of the application for the Branson Pit Conversion in the Natural Resources Conservation Service office.

By: Donnalee Tortorelli Title: District Manager 2-25-08

Las Animas County Road and Bridge
2000 N. Linden Ave.
Trinidad, CO. 81082 (719) 846-2931 fax (719) 846-0434

February 25, 2008

Division of Minerals and Geology
1313 Sherman Street, Room 215
Denver, CO. 80203

RE: Branson Pit M-1997-100 Conversion Proof of Filing with County Clerk

I hereby certify that on February 25, 2008, I personally hand delivered a copy of the conversion application for the Branson Pit to the Las Animas County Clerk's office at 201 East 1st Street for public review.

Sincerely,

Phil Dorenkamp
LAC R&B Supv.

Received a copy of the application for the Branson Pit Conversion in the Las Animas County Clerk's office.

By: Kathy Evans Title: Deputy
2-25-08

Las Animas County Road and Bridge
2000 N. Linden Ave.
Trinidad, CO. 81082 (719) 846-2931 fax (719) 846-0434

February 25, 2008

Division of Minerals and Geology
1313 Sherman Street, Room 215
Denver, CO. 80203

RE: Branson Pit M-1997-100 Conversion Proof of Filing with Board of County Commissioners

I hereby certify that on February 25, 2008, I personally hand delivered a copy of the conversion application for the Branson Pit to the Las Animas County Board of County Commissioner's office at 201 East 1st Street for review.

Sincerely,

Phil Dorenkamp
LAC R&B Supv.

Received a copy of the application for the Branson Pit Conversion in the Las Animas County Board of County Commissioner's office.

By: Irene Vigil 2-25-08 Title: Exe. Assistant

Agreement

This Agreement is between **John F. Doherty** and **Joan L. Doherty**, referred as DOHERTY, and the **Las Animas County Board of County Commissioners**, a political subdivision of the State of Colorado, hereinafter referred to as BOCC.

The parties to this Agreement stipulate and agree that Doherty has gravel deposits on their property at a location known as the Branson Gravel Pit which is currently being expanded from a 110 Reclamation Permit to a 112 Reclamation Permit for extraction of gravel deposits, and that BOCC, through its Road and Bridge department would like to purchase and use the gravel deposits, and

The parties further agree that instead of purchasing the gravel outright from Doherty, Doherty may chose to be compensated by "in kind" work to their property, in which case BOCC will compensate Doherty for gravel deposits removed by a fair exchange of value in terms of "in kind" work to be done by the county, its crews and machinery, of comparable value, and

The parties further agree in particular, as follows:

1. BOCC will remove clean gravel deposits from the Branson Gravel Pit.
2. BOCC will compensate Doherty by paying a value of $.30/ton of clean processed gravel and other road materials removed from their property and used for county purposes.
3. The parties will calculate the tonnage of processed gravel by the tonnage fed into the crusher as per the scale on the loader. All other materials will be by assigning 26 tons for each belly dump and 15 tons for each tandem dump load of material hauled from the property.
4. BOCC shall have ingress and egress into and upon Doherty property for the purpose producing and removing processed gravel and other road materials and performing the agreed upon work to be done on the Doherty property, and may be required to establish entry and egress lanes as needed.
5. Doherty may chose to be compensated in "in kind" work performed on its property rather than cash, or part cash and part "in kind", which may include the following "in kind".

6. Grading up and gravel to shipping pens that are 1 ½ or 2 miles west of Branson on the Trinchera road, about 200 yds roadwork. No cattle guard will be installed.
7. Grading up and gravel to working pens about 3 to 3 ½ miles east of Branson and ½ mile off of the County Road. No cattle guard will be installed.
8. Doherty may choose to receive additional in-kind payment in lieu of cash payment, as the parties may agree.
9. BOCC will complete removal of the gravel deposits on or before December 31, 2018.
10. Rates for the BOCC "in kind" work will be billed as follows: grader & operator $70.00/hr (i.e. $55.00 grader plus $15.00); Tractor, belly dump & operator, $75.00, Backhoe & operator at $45.00/hr, Loader & operator at $60.00/hr.
11. Cattle guard construction will be billed as follows: cattle guard, $1,500.00, concrete sub structures, $800.00 and installation, $500.00.
12. All county employees involved in performing "in kind" work are county employees and shall not be considered, for any purpose, as employees of Doherty.

Las Animas County Board of County Commissioners

By: Jim D Montoya 3-4-08
Jim D. Montoya, Chairman Date:

Attest: Bernard Gonzales by Lynne Mazza
Bernard Gonzales, Clerk & Recorder Date:

John F. Doherty 2/25/08
John F. Doherty Date:

Joan L. Doherty 2-25-2008
Joan L. Doherty Date:

Attest: _____
Date: