

U.S DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

**PRACTICE REQUIREMENTS  
FOR  
316 – ANIMAL MORTALITY FACILITY**

For: Business Name \_\_\_\_\_  
Job Location \_\_\_\_\_  
County \_\_\_\_\_ RCD \_\_\_\_\_ Farm/Tract No. \_\_\_\_\_  
Referral No. \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

**IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.**

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. \_\_\_\_\_
2. Practice Specifications \_\_\_\_\_
3. Type of Animal Mortality Facility to be installed: \_\_\_\_\_
4. Special Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Special Maintenance Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PRACTICE APPROVAL:**

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class \_\_\_\_\_

Limiting elements:	Units
<u>Capacity</u> _____	_____ cu.ft.
_____	_____
_____	_____
_____	_____

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:**

The landowner/operator acknowledges that:

- a. He/she has received a copy of the drawings and specification, and that he/she has an understanding of the contents, and the requirements.
- b. He/she has obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

**PRACTICE COMPLETION:**

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Completion Certification by:

/s/ \_\_\_\_\_ Date \_\_\_\_\_

U.S DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

**PRACTICE REQUIREMENTS  
FOR  
320 - IRRIGATION CANAL OR LATERAL**

For: Business Name \_\_\_\_\_  
Job Location \_\_\_\_\_  
County \_\_\_\_\_ RCD \_\_\_\_\_ Farm/Tract No. \_\_\_\_\_  
Referral No. \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

**IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.**

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. \_\_\_\_\_
2. Practice Specifications \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
3. Special Requirements: \_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_
4. Special Maintenance Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PRACTICE APPROVAL:**

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class \_\_\_\_\_

Limiting elements:	Units
<u>Design Capacity</u> _____	_____ cfs
_____	_____
_____	_____
_____	_____

Design Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:**

The landowner/operator acknowledges that:

- a. He/she has received a copy of the construction drawings and specification, and that he/she has an understanding of the contents, and the requirements.
- b. He/she has obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

**PRACTICE COMPLETION:**

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Completion Certification by:

/s/ \_\_\_\_\_ Date \_\_\_\_\_

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**320 - IRRIGATION CANAL OR LATERAL**

**I. SCOPE**

The work shall consist of constructing a canal or lateral to the lines, grades, elevations and cross-sections as shown on the drawings or as staked in the field.

**II. FOUNDATION PREPARATION**

The foundation area for all canal and lateral embankments shall be cleared of all trees, brush, weeds, sod, loose rock, or other material not suitable for the subgrades.

Clearing and disposal methods shall be in accordance with applicable state and county laws with due regard to the safety of persons and property.

**III. PLACEMENT OF EARTHFILL**

Embankment materials shall be free of brush, roots, sod, large rocks, or other material not suitable for making compacted fills. Earthfills shall be compacted to a density equal to or greater than adjacent undisturbed earth. The soil moisture shall be such that the material will form a firm ball when squeezed in the hand.

Compaction may be accomplished by passage of excavating equipment. The wheels or tracks of the equipment must pass over 90 percent of the surface of each lift. Each lift shall not exceed six inches before compaction.

**IV. EXCAVATION**

The excavated surface shall be graded and smooth. Construction activities shall be carried on in a manner that will NOT restrict flow from upstream channels. Care must be taken to reduce and prevent sediment pollution of water.

Suitable excavated materials shall be used in fills and other excavated materials shall be disposed of in designated soil areas.

**V. SPOIL**

Berms shall be the width and shape as shown on the drawings or as staked in the field. Excavated material may be deposited along one or both sides of the canal or spread on the adjoining fields as directed by the landowner or his representative. Spoil banks shall be graded and smoothed to accommodate vegetative planting. Spoil banks used as levees shall be constructed as shown on the drawings.

Over-excavation in the channel area or over fill on the canal or lateral banks shall be permitted if it does not interfere with the function of the canal or related structures and if the finished section is generally smooth.

**VI. INSTALLATION OF STRUCTURES**

Structures are to be constructed of the materials and in accordance with the lines, elevations, and grades shown on the drawings or as staked in the field. Structures other than concrete shall be installed in accordance with the manufacturer's recommendations or as specified in attached special specifications.

**VII. CONCRETE FOR STRUCTURES**

Concrete work shall be constructed to the dimensions, lines and grades as shown on the drawings, and shall conform to the requirements of Construction Specification, 901 Concrete.

**VIII. VEGETATIVE COVER**

Unless otherwise specified, a protective cover of vegetation shall be established on the disturbed area.

The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

**IX. SPECIAL MEASURES**

Measures and construction methods shall be incorporated as needed and practical that enhance fish and wildlife values. Special attention shall be given to

protecting visual resources and maintaining key shade, food and den trees.

## **X. CONSTRUCTION OPERATIONS**

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, Contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

The completed job shall be workmanlike and present a good appearance.

## **OPERATION AND MAINTENANCE ITEM**

This practice was designed and installed to remove and safely convey runoff water. The estimated life span of this installation is at least 10 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic maintenance and may also require operational items to maintain satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program.

Maintain cross-section and gradient by controlling channel erosion and sloughing.

Immediately remove any obstructions or blockage of spillways, trash racks, inlets, or outlets.

Control the growth of vegetative materials by the use of herbicides and/or mowing.

Remove all foreign debris that hinders system operation.

Install and maintain fences to prevent livestock access when adjacent fields are used for pasture.

Check all rock riprap sections for accelerated weathering and displacement. Replace to original grades if necessary.

Immediately repair any vandalism, vehicular, or livestock damage.

Other items specific to your project are listed on the "Practice Requirement" sheet.

U.S DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

**PRACTICE REQUIREMENTS  
FOR  
388 - IRRIGATION FIELD DITCH**

For: Business Name \_\_\_\_\_  
Job Location \_\_\_\_\_  
County \_\_\_\_\_ RCD \_\_\_\_\_ Farm/Tract No. \_\_\_\_\_  
Referral No. \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

**IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.**

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. \_\_\_\_\_
2. Practice Specifications \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
3. Special Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Special Maintenance Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PRACTICE APPROVAL:**

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class \_\_\_\_\_

Limiting elements:	Units
<u>Area Benefited</u> _____	_____ ac
_____	_____
_____	_____
_____	_____

Design Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:**

The landowner/operator acknowledges that:

- a. He/she has received a copy of the drawings and specification, and that he/she has an understanding of the contents, and the requirements.
- b. He/she has obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

**PRACTICE COMPLETION:**

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Completion Certification by:

/s/ \_\_\_\_\_ Date \_\_\_\_\_

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**388 - IRRIGATION FIELD DITCH**

**I. SCOPE**

The work shall consist of construction a graded ditch in a field to the depths, grades, and cross sections as shown on the drawings or as staked in the field.

**II. EXCAVATION**

There shall be no reversals in slope that will create ponding.

Excavated material shall be deposited along one or both sides of the ditch, spread and leveled so that the surface can flow into the ditch, or disposed of in the manner and location shown on the drawings.

**III. STRUCTURES**

Structures shall be constructed at the locations, grades, elevations and of the materials shown on the materials shown on the drawings and as specified in the specifications as listed on the "Practice Requirements" sheets.

**IV. VEGETATIVE COVER**

Unless otherwise specified, a protective cover of vegetation shall be established on the disturbed area. The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

**V. SPECIAL MEASURES**

Measures and construction methods shall be incorporated as needed and practical that enhance fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food and den trees.

**VI. CONSTRUCTION OPERATIONS**

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, Contractor or other persons will conduct all work and operations in accordance with proper safety codes for

the type of construction being performed with due regards to the safety of all persons and property.

The completed job shall be workmanlike and present a good appearance.

**OPERATION AND MAINTENANCE ITEMS**

A properly operated and maintained irrigation ditch is an asset to your farm. This irrigation ditch was designed and installed to convey water for proper irrigation use. The estimated life span of this installation is at least 10 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic maintenance and may also require operational items to maintain satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program.

Maintain cross-section and gradient by controlling channel erosion and sloughing.

Immediately remove any obstructions or blockage of spillways, trash racks, inlets, or outlets.

Control the growth of vegetative materials by the use of herbicides and/or mowing.

Remove all foreign debris that hinders system operation.

Install and maintain fences to prevent livestock access when adjacent fields are used for pasture.

Check all rock riprap sections for accelerated weathering and displacement. Replace to original grades if necessary.

Immediately repair any vandalism, vehicular, or livestock damage.

Other items specific to your project are listed on the "Practice Requirement" sheet.

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U.S DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

**PRACTICE REQUIREMENTS  
FOR  
428A - IRRIGATION WATER CONVEYANCE  
CONCRETE DITCH AND CANAL LINING, PLAIN CONCRETE**

For: Business Name \_\_\_\_\_  
Job Location \_\_\_\_\_  
County \_\_\_\_\_ RCD \_\_\_\_\_ Farm/Tract No. \_\_\_\_\_  
Referral No. \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

**IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.**

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. \_\_\_\_\_
2. Practice Specifications \_\_\_\_\_
3. Type of Portland cement \_\_\_\_\_, Lining thickness \_\_\_\_\_ in
4. Compaction Method \_\_\_\_\_
5. Elevation of turnouts \_\_\_\_\_
6. Special Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Special Maintenance Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PRACTICE APPROVAL:**

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class \_\_\_\_\_

Limiting elements:	Units
<u>Design Capacity</u> _____	_____ cfs
<u>Design Velocity</u> _____	_____ fps
_____	_____
_____	_____

Design Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:**

The landowner/operator acknowledges that:

- a. He/she has received a copy of the construction drawings and specification, and that he/she has an understanding of the contents, and the requirements.
- b. He/she has obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

**PRACTICE COMPLETION:**

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Construction Certification by:

/s/ \_\_\_\_\_ Date \_\_\_\_\_

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**428A - IRRIGATION WATER CONVEYANCE  
NONREINFORCED CONCRETE DITCH AND CANAL LINING**

**I. SCOPE**

The work shall consist of constructing concrete ditch lining to the alignment, grades and dimensions as shown on the drawings, or as staked in the field.

**II. FOUNDATION PREPARATION**

The foundation area for all ditch embankments and/or ditch pads shall be cleared of all trees, weeds, sod, loose rock, or other materials not suitable for the subgrade. All trees with root systems that are a hazard to the ditch or canal lining shall be removed.

The entire foundation areas for ditch embankments and/or ditch pads shall be compacted with a minimum of 5 passes of rubber tired equipment weighing a minimum of 20,000 pounds prior to placement of fill materials. The foundation surface shall be scarified and the soil moisture content shall be adjusted as necessary so that the soil will maintain a ball shape when squeezed in the hand prior to compaction.

**III. PLACEMENT OF EARTHFILL**

**Pad width.** Unless otherwise specified, the shoulder width of ditch and canal banks shall not be less than two feet with side slopes of 2:1.

**Material.** Embankment materials shall be free of brush, roots, sod, large rocks, frozen soil, or other material not suitable for making compacted fills.

**Moisture Content.** The moisture content and methods of placing and compacting the soil moisture shall insure a firm and stable pad. The moisture content of the fill shall be maintained within the limits required to insure the crushing and blending of the soil. Soil moisture shall be uniformly distributed throughout the profile at the time of compaction by blading or other appropriate methods. The moisture content shall conform to one of the methods specified under compaction.

**Compaction.** Embankments and fills shall be constructed by placing the fill materials at proper moisture content in uniform lifts not exceeding 8 inches in thickness. The following methods of construction and compacting embankments are

satisfactory under the conditions as specified for one of the following methods:

**Method 1.** The moisture content shall be sufficient so that the soil will maintain a ball shape when squeezed in the hand. Compaction shall be performed by routing construction equipment weighing a minimum of 20,000 pounds over the entire embankment area at least 5 times.

**Method 2.** The moisture content shall be maintained within the limits of 2 percentage points below and 1 percentage point above optimum. Optimum moisture shall be as determined by the procedures of ASTM D-698. The density of the compacted material shall exceed 90 percent of the maximum density obtained by ASTM D-698 for the soil material at the site.

Earth ditches that have been in use and whose embankments are settled and compacted may be used when lines, grades, and cross sections fulfill requirements and are free of grass, or other vegetative growth. Loose or uncompacted material shall be removed and new material added and compacted as specified above. Small areas may be compacted by hand tamping to the same density as adjacent undisturbed base material, or as specified on the Practice Requirements sheet.

**IV. EXCAVATION**

Ditches and canals shall be excavated to the neat lines of the specified cross section and finished to a smooth, firm surface. Over excavated areas shall be backfilled with:

1. Soil meeting the requirements for earthfill specified in Section III, and compacted to the density of the surrounding material, or
2. Compacted coarse grained material, or
- 3) Concrete.

No abrupt deviations from design grade or horizontal alignments shall be permitted.

Material excavated in forming the ditch subgrade may be used as fill when it is processed according to the

requirements of Section III above. All material used shall be compacted to insure that no concrete is placed against loose or unstable material.

## V. FORMS

Forms used shall conform to the shapes, lines and dimensions as shown on the drawings. They shall be braced on/or tied together so as to maintain position and shape and be sufficiently tight to prevent leakage of mortar. Forms shall be thoroughly cleaned of debris and moisten prior to placement of concrete.

## VI CONCRETE PLACEMENT AND CURING

Concrete linings shall be constructed to the thickness shown on the drawings and/or specified. Concrete linings shall have a smooth and uniform finish and shall be free of honeycomb, or slumping.

Slip forms and screeding equipment shall be operated so as to place the concrete uniformly across the perimeter of the ditch or canal. Concrete shall not be placed on mud, excessively dry soil, uncompacted fill, ice, or frozen subgrade.

Freshly placed concrete shall be cured by the application of white pigmented curing compound. The compound shall meet the requirement of ASTM C-309. The compound shall be applied under pressure by a spray nozzle, and shall cover the entire surface area with a dense uniform film. Coverage shall not exceed 175 square feet per gallon, and shall be applied within 20 minutes of the final finishing of the concrete.

## VII. CONTRACTION AND CONSTRUCTION JOINTS

Contraction joints at least 1/4-inch wide shall be cut transversely in the concrete to a depth of about one-third the thickness of the lining at a uniform spacing not greater than 10 ft. Construction joints shall be the butt type, formed square with the lining surface and at right angles to the ditch or canal. Contraction and construction joints shall be tooled so that the edges will have a smooth finish.

## VIII. MATERIALS

**General.** Concrete used in ditch and canal linings shall be proportioned so that it is plastic enough for thorough consolidation and stiff enough to stay in place on the side slopes. A dense, durable product shall be required. The concrete mix shall be one that can be certified as suitable to produce a 28-day compressive strength of 2,500 lb./sq. in. or greater.

Ready-mix may be used if the concrete is mixed and delivered according to ASMT Designation C-94. Ready-mix concrete shall be discharge from the truck mixer within 1 1/2 hours after water is added to the

cement and aggregates, or the cement with the aggregates. If the air temperature exceeds 90 degrees, the discharge time shall be reduced to 45 minutes.

**Cement.** The cement used shall be Portland cement, Types II, or V, as specified for the job. Fly ash or pozzolans, conforming to ASTM C 618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete except the loss on ignition shall not exceed 3 percent, may be used to replace not more than 15 percent of the cement by weight. All fly ash or pozzolans shall be subject to prior approval of the Engineer.

**Water.** Water used in mixing shall be clean and free from harmful amounts of sediments, salts, or organic impurities.

**Aggregates.** Aggregates shall conform to ASTM Designation C-33, Standard Specification for Concrete Aggregates, and shall be well graded from fine to the maximum size, and shall be clean, hard, strong, and durable, free from dirt and other substances deleterious to concrete. The maximum size of aggregate shall not exceed one-half the thickness of the slab or 1 1/2 inches whichever size is smaller.

Pit run aggregates may be used if they meet the above requirements and if no more than three percent (by weight) will pass a No. 200 sieve, and if not less than one-third or more than one-half of the material (by weight) is a well graded sand that will pass a No. 4 sieve. If aggregates are not obtained from an approved commercial source, they must be tested for impurities, and gradation determined.

**Air-entrainment.** Air-entrainment admixture may be used when the mix does not contain pozzolans. The air content shall not exceed six percent of the volume of concrete.

**Proportioning.** Proportions of sand, gravel, cement and water shall be such as to produce a workable mix of the consistency needed for the method of placement to be employed, and will produce a dense, durable, water-tight concrete. Proportioning outside the limits given below must be supported by strength tests to insure 2,500 pound concrete. The cement content shall not be less than five bags of cement per cubic yard unless otherwise specified.

**Slip-form method of placement.** Fine aggregate (passing No. 4 sieve) shall not be less than 40 percent nor more than 55 percent by weight of total aggregate. Total weight of aggregate per cubic yard shall not exceed 3,200 pounds. Aggregates shall be batched by weight.

**All other methods of placement.** The fine and coarse aggregate shall be a well graded mix approved by the Engineer.

**Water.** Water Content of the concrete mixture will be the minimum necessary to properly place the mixture being used. For slip-form placement, the slump range shall be between two and four inches.

**Mixing.** Mixing shall be continued for not less than 1 1/2 minutes after all materials, including water, have added. Each batch shall be completely discharged before the mixer is recharged.

#### **IX. RELATED STRUCTURES**

Needed related structures may be installed before, during, or after the lining placement. They must be constructed or installed in such a way as to not damage or impair the effectiveness of the lining. All fittings and accessories shall be installed according to the customary practice of the industry and/or according to the recommendations of the manufacturer.

#### **X. CONCRETING IN COLD WEATHER**

If conditions warrant, concrete shall be protected from freezing for at least three days after placement. The use of accelerators or antifreeze compounds shall not be allowed. Before any concrete is placed, all ice, snow, and frost shall be completely removed from all surfaces to be in contact with the new concrete, and the temperature of these surfaces shall be raised to as close as may be practical to the temperature of the concrete. Concrete shall not be placed when the daily minimum atmospheric temperature is less than 40<sup>0</sup>F, unless facilities are provided to insure adequate protection. The temperature of the concrete at the time of placing shall not be less than 50<sup>0</sup>F nor more than 90<sup>0</sup>F. The temperature of all aggregates and mixing water shall not be more than 100<sup>0</sup>F when introduced into the mixer. Concrete damaged by freezing shall be considered defective work and must be removed and replaced according to these specifications.

#### **XI. CONCRETING IN HOT WEATHER**

The temperature of the concrete at the time of placement shall NOT be more than 90<sup>0</sup>F and efforts shall be made to maintain it at a lower temperature. Available industrial practices can be utilized to maintain the aggregates and mixing water at a low temperature during the mixing and placing operations.

#### **XII. TURN OUTS**

After the concrete lining has been placed, and turnouts installed, the earth backfill shall be properly compacted as specified in Section III. The moist earth material

shall be placed in 8-inch layers and compacted by hand to the same density as specified. The invert elevation of the turnout shall be as specified on the "Practice Requirements" sheet.

#### **XIII. VEGETATIVE COVER**

When specified, a protective cover of vegetation shall be established on the disturbed area. The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

#### **XIV. SPECIAL MEASURES**

Measures and construction methods shall be incorporated, as needed and practical, that enhance fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food and den trees.

#### **XV. CONSTRUCTION OPERATIONS**

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, Contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property. The completed job shall be workmanlike and present a good appearance.

#### **VI. BASIS OF ACCEPTANCE**

The acceptability of the ditch shall be determined by inspections to check compliance with all the provisions of this specification with respect to the drawings, the appurtenances, and the minimum installation requirements. The installing contractor shall certify that the installation complies with the requirements of the specification. The contractor shall furnish a written guarantee that protects the owner against defective workmanship and materials for not less than 1 year.

#### **OPERATION AND MAINTENANCE ITEMS**

A properly operated and maintained lined irrigation ditch is an asset to your farm. This lining was designed and installed to reduce water loss in your irrigation delivery and/or head ditches. The estimated life span of this installation is at least 10 years. The life of the structure can be assured and usually increased by developing and carrying out a good operation and maintenance program

This practice will require you to perform periodic maintenance and may also require operational items to maintain satisfactory performance. Here are some

recommendations to help you develop a good operation and maintenance program

Maintain adequate drainage of the foundation.

Maintain the widths of soil berms on the field site of the lining.

Drain all lined ditches when not being used.

Immediately repair any cracks or breaks in the lining and if settlement is present, investigate cause before repair.

Avoid the use of tillage equipment that accelerates soil removal.

If livestock are present, prevent their access to the lining and provide a system of watering.

Remove any blockage that restricts capacity.

Check concrete surfaces for accelerated weathering, spalling, settlement, alignment or cracks. Repair immediately as they may expose reinforcement and reduce the structure life.

Immediately repair any vandalism, vehicular or livestock damage.

Other items specific to your project are listed on the "Practice Requirements" sheet.

U.S DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

**PRACTICE REQUIREMENTS  
FOR  
443 - IRRIGATION SYSTEM  
SURFACE AND SUBSURFACE**

For: Business Name \_\_\_\_\_  
Job Location \_\_\_\_\_  
County \_\_\_\_\_ RCD \_\_\_\_\_ Farm/Tract No. \_\_\_\_\_  
Referral No. \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

**IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.**

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. \_\_\_\_\_
2. Practice Specifications \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
3. Special Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Special Maintenance Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PRACTICE APPROVAL:**

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class \_\_\_\_\_

Limiting elements:	Units
<u>Area Irrigated</u> _____	_____ ac
_____	_____
_____	_____
_____	_____

Design Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:**

The landowner/operator acknowledges that:

- a. He/she has received a copy of the construction drawings and specification, and that he/she has an understanding of the contents, and the requirements.
- b. He/she has obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

**PRACTICE COMPLETION:**

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Completion Certification by:

/s/ \_\_\_\_\_ Date \_\_\_\_\_

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**443 - IRRIGATION SYSTEM  
SURFACE AND SUBSURFACE**

**I. SCOPE**

The work will consist of furnishing and installing materials as required to provide a complete irrigation system for the tract of land as shown on the drawings.

**II. SOURCE OF WATER**

The source of water shall be as shown on the drawings, and as previously determined by the landowner. Water rights for the use of the water are the responsibility of the landowner. The source shall provide the full capacity as may be needed for the system being installed.

**III. INSTALLATION**

The system shall be tested to determine if the system is in proper working order, and will deliver the required capacity to meet the crop consumptive use, and the specified distribution uniformity rate.

**IV. BASIS OF ACCEPTANCE**

The basis of acceptance shall be the ability of the system to deliver the required amount of water to meet the peak consumptive use of the crop, with a distribution uniformity rate of 80 percent or greater.

**OPERATION AND MAINTENANCE ITEMS**

A properly operated and maintained surface irrigation system is an asset to your farm. This irrigation system was designed and installed to apply irrigation water to meet the needs of the crops without causing excessive erosion or runoff. The estimated life span of this installation is at least 10 years. The life of this system can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic maintenance and may also require operational items to maintain satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program.

Only operate the system when needed to furnish water for plant growth, the soil may also be used to store moisture within the rooting depth of the plant.

Operate the system at the pressure discharge rate, duration and frequency as designed.

Monitor the crop noting areas of moisture stress and repair or adjust system operation.

Promptly repair all leaks, by replacing gaskets or worn parts.

Make sure that the runoff water is promptly removed by a drainage or tailwater recovery system.

During non-seasonal use place the system in an area where it will not be damaged but secure, if necessary.

Maintain all pumps, agitators, piping, valves and other electrical and mechanical equipment in good operating condition following the manufacturers' recommendations.

Inspect for damage from rodents or burrowing animals. Repair any damage. Take appropriate corrective actions to alleviate further damage.

Immediately repair any vandalism, vehicular or livestock damage.

Other items specific to your project are listed on the "Practice Requirement" sheet.

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U.S DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
CALIFORNIA

**PRACTICE REQUIREMENTS  
FOR  
607 - SURFACE DRAINAGE  
FIELD DITCH**

For: Business Name \_\_\_\_\_  
Job Location \_\_\_\_\_  
County \_\_\_\_\_ RCD \_\_\_\_\_ Farm/Tract No. \_\_\_\_\_  
Referral No. \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

**IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION.**

Installation shall be in accordance with the following drawings, specifications and special requirements. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS TECHNICIAN.

1. Drawings, No. \_\_\_\_\_
2. Practice Specifications \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
3. Special Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Special Maintenance Requirements: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**PRACTICE APPROVAL:**

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class \_\_\_\_\_

Limiting elements:	Units
<u>Area Benefited</u> _____	_____ ac
_____	_____
_____	_____
_____	_____

Design Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

**LANDOWNER'S/OPERATOR'S ACKNOWLEDGEMENT:**

The landowner/operator acknowledges that:

- a. He/she has received a copy of the drawings and specification, and that he/she has an understanding of the contents, and the requirements.
- b. He/she has obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS technician.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: \_\_\_\_\_ Date: \_\_\_\_\_

**PRACTICE COMPLETION:**

I have made an on site inspection of the site (or I am accepting owner/contractor documentation), and have determined that the job as installed does conform to the drawings and practice specifications.

Completion Certification by:

/s/ \_\_\_\_\_ Date \_\_\_\_\_

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**607 - SURFACE DRAINAGE  
FIELD DITCH**

**I. SCOPE**

The work shall consist of construction a graded ditch in a field to the depths, grades, and cross sections as shown on the drawings or as staked in the field.

**II. EXCAVATION**

Unless otherwise specified, excavation shall begin at the outlet and progress upstream.

There shall be no reversals in slope that will create ponding.

Excavated material shall be deposited along one or both sides of the ditch, spread and leveled so that the surface can flow into the ditch, or disposed of in the manner and location shown on the drawings.

**III. STRUCTURES**

Structures shall be constructed at the locations, grades, elevations and of the materials shown on the materials shown on the drawings and as specified in the specifications as listed on the "Practice Requirements" sheets.

**IV. VEGETATIVE COVER**

Unless otherwise specified, a protective cover of vegetation shall be established on the disturbed area. The planting of vegetative materials shall conform to the requirements of Practice Specification 342, Critical Area Planting.

**V. SPECIAL MEASURES**

Measures and construction methods shall be incorporated as needed and practical that enhance fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food and den trees.

**VI. CONSTRUCTION OPERATIONS**

Construction operations shall be done in such a manner that erosion and air and water pollution are minimized and held within legal limits. The owner, operator, Contractor or other persons will conduct all work and operations in accordance with proper safety codes for the type of construction being performed with due regards to the safety of all persons and property.

The completed job shall be workmanlike and present a good appearance.

**OPERATION AND MAINTENANCE ITEMS**

A properly operated and maintained drainage ditch is an asset to your farm. This drainage ditch was designed and installed to remove and safely convey runoff water. The estimated life span of this installation is at least 10 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic maintenance and may also require operational items to maintain satisfactory performance. Here are some recommendations to help you develop a good operation and maintenance program.

Maintain cross-section and gradient by controlling channel erosion and sloughing.

Immediately remove any obstructions or blockage of spillways, trash racks, inlets, or outlets.

Control the growth of vegetative materials by the use of herbicides and/or mowing.

Remove all foreign debris that hinders system operation.

Install and maintain fences to prevent livestock access when adjacent fields are used for pasture.

Check all rock riprap sections for accelerated weathering and displacement. Replace to original grades if necessary.

Immediately repair any vandalism, vehicular, or livestock damage.

Other items specific to your project are listed on the "Practice Requirement" sheet.

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NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE SPECIFICATION

**705A - AIR MANAGEMENT- DUST**

**I. SCOPE**

The work shall consist of modifying cultural and management operations to reduce the amount of airborne dust and improve air quality generated by agricultural operations.

**II. GENERAL**

Agricultural operations shall be performed as specified on the Practice Requirements sheet, with emphasis during the critical air period.

**III. DUST MANAGEMENT**

**Roads**

Treat unpaved roads and staging areas with water, chemicals, soil stabilizers, mulch, or other cover during harvest and other heavy use periods as specified on the Practice Requirements sheet to reduce dust. Treatment shall minimize mud sticking to equipment tires. Unpaved dirt roads shall be watered or treated with other acceptable materials during harvest and other heavy use periods unless otherwise specified on the Practice Requirements sheet. Treatment shall minimize mud sticking to equipment tires.

Dual tire trucks shall be inspected and clods removed from between tires before going from a field onto a paved road. Avoid turning tractors and implements on paved roads during critical air periods if soil will be dropped on the road. Soil dropped on the roads should be removed. Control speed and access on unpaved roads. Wet unpaved farm roads early enough that mud will not stick to tires and be carried onto paved roads. Vegetate or keep surfaces on road shoulders stable to reduce dust.

Materials used for dust control on unpaved farm roads and unpaved equipment storage shall conform to the following requirements:

1. **ROAD OILS:** liquid asphalts shall meet the requirements as specified within Cal Trans Standard Specifications, Section 93-1.01 for SC-250 and SC-800.
2. **POLYMER EMULSIONS:** manufacturers' specifications and guidelines shall be used and

followed for all polymer emulsions used as dust retardants.

3. **OIL AND AGGREGATE:** manufacturers' specifications and guidelines shall be used and followed for all oils and aggregates.
4. **ROAD BASE:** road base material shall meet the requirements as specified within Cal Trans Standard Specifications, Section 26-1.01A: Class 2 Aggregate Base. Road base must meet Class 2, ¾" maximum standard.
5. **ASPHALTS:** Asphalt material shall meet the requirements as specified in Cal Trans Standard Specifications, Section 92-1.02.
6. Other materials may be applicable and shall be considered on a case by case basis by the NRCS engineer.

All materials used for dust control shall meet federal, state, and local regulations and shall be applied strictly in accordance with authorized registered uses, label directions, and all regulations. Containers shall be properly stored and disposed of in a safe manner according to all ordinances and procedures. All safety precautions and industry guidelines shall be followed. Materials used shall not cause negative impacts to ground and surface water quality and shall meet EPA and state regulations for water quality.

**Confined Animals**

Manage unpaved corrals and walkways to control dust generated by animal activities. Treatment includes watering prior to expected heavy animal activity, application of soil stabilizers or surfacing. Mixing animal feed in an enclosed area or during low wind periods can minimize dust from onsite animal feed processing.

**Cropland**

Reduce or modify agricultural cultural operations that create dust during critical air periods. Where appropriate, use wind erosion control practices to reduce damage from airborne particulates that fill or cover ditches, culverts, roads, drainages or damage equipment, structures, and crops.

Provide crop residues or a cover crop during critical air periods to protect exposed fields and to reduce the impacts of soil compaction due to tillage. Provide adequate soil moisture levels during tillage operations to reduce dust and increase clods. After land leveling or re-leveling, the field should be irrigated or bedded up soon as possible and not left in a smooth dry condition. Disk fallow fields in the early spring to eliminate winter weeds before seed maturity and with adequate moisture to produce clods. List or bed up early to control summer weeds before seed maturity. Establish perennial vegetative cover on cropland converted to other uses.

Nut orchards shall be irrigated 10 to 20 days before harvest unless otherwise specified on the Practice Requirements sheet. Cover crops in orchards and vineyards improve soil structure and tilth and reduce dust generated during cultural and harvest operations.

Methods or procedures that reduce dust just prior to and during harvest should be considered.

Other operations to reduce dust shall be performed when specified on the Practice Requirements sheet.

Products used on roads for dust suppression shall be applied according to manufacturers' recommended rates and considerations. No product shall be used which could runoff or seep into a water body and cause deterioration of the water quality. Any test results, reports, or other information pertinent to the use or safety of the product shall be specified on the Practice Requirements sheet.

Other operations such as slowing vehicle speed, or limiting access to reduce dust shall be performed when specified on the Practice Requirements sheet.

#### **IV. TEMPERATURE MODIFICATION**

The use of wind fans, misters, irrigation, and other measures to modify air temperature shall be performed when specified on the Practice Requirements sheet.

#### **V. HUMIDITY MODIFICATION**

The use of misters, irrigation, and other measures to modify humidity shall be performed when specified on the Practice Requirements sheet.

#### **VI. AIR MOVEMENT MODIFICATION**

The use of windbreaks, herbaceous wind barriers, and other measures to modify wind movement shall be performed when specified on the Practice Requirements sheet.

#### **VII. OTHER REQUIREMENTS**

The owner, operator, contractor, and other persons shall conduct all work and operations in accordance with proper safety codes for the type of equipment and operations being performed with due regard to the safety of all persons and their property.

Workers shall be provided with protective breathing equipment to minimize exposure to air related hazards

Other conservation practices might be appropriate to use in conjunction with this practice such as Heavy Use Area, Land Leveling and Windbreaks.

The work shall be performed in compliance with all federal, state, and local laws, rules, and regulations affecting the control of airborne particles.