Springville Area Irrigation and Drainage Group

Application Packet

Guide for Application, Review, and Approval Process with
Springville Area Irrigation and Drainage Group
For Encroachment upon Easements

Springville Irrigation Company
Wood Springs Irrigation Company
Coffman Springs Irrigation Company
Matson Springs Irrigation Company
Big Hollow Irrigation Company
Mill Pond Irrigation Company
Wash Creek Irrigation Company
Springville Drainage District

Springville Area Irrigation and Drainage Group
General Instructions

There are seven irrigation companies and one drainage district that have come together to form the Springville Area Irrigation and Drainage Group (SIDG), consisting of:

- Springville Irrigation Company
- Wood Springs Irrigation Company
- Coffman Springs Irrigation Company
- Matson Springs Irrigation Company
- Big Hollow Irrigation Company
- Mill Pond Irrigation Company
- Wash Creek Irrigation Company
- Springville Drainage District

This packet is intended to assist Applicants in working with SIDG. All Applicants are required to obtain permission from SIDG to do work affecting SIDG facilities. SIDG facilities include: canals, irrigation ditches, land drain lines, drainage ditches, and some storm drains. Besides having many irrigation ditches throughout the area that are affected with development, the irrigation companies also have an agreement with Springville City to convey storm drainage through irrigation company facilities. This tie between Springville City and SIDG is part of the reason why there is so much involvement and coordination by SIDG in the Development Review Committee (DRC) process.

Any desired development that will affect SIDG facilities must go through the Application, Review, and Approval Process. This includes any time that work is done within SIDG easements. Franson Civil Engineers (Franson Civil) is the engineering firm for SIDG. Franson Civil will review all plans that affect SIDG facilities. This review process is in-depth and may be lengthy depending on the quality of the plans submitted for review. The following is a guideline for the Application, Review, and Approval Process affecting SIDG facilities:

- The Applicant meets with Springville City for pre-DRC meetings. The Applicant contacts Franson Civil to receive the application packet.

- The Applicant uses the guidelines in the application packet to design the affected facilities to SIDG standards and will coordinate with Franson Civil on ditch capacities and site-specific design elements.

- The development drawings are finalized for the Springville City DRC with all SIDG facilities designed and ready for final review.

- Franson Civil receives the **application**, **application fees**, and **drawings**. The application and fees have to be submitted to Franson Civil before the final drawings are submitted for the Springville City DRC. Otherwise, no review of the drawings will be completed by SIDG and no review comments will be submitted to DRC. This will delay the approval of the development.
- Franson Civil will **review** the drawings, including the plat map. A meeting will be held with Franson Civil, SIDG, and the Applicant (if desired) to discuss the development. Review comments will be sent to the Springville City DRC with a checklist of items that

must be addressed prior to approval (generally 2-3 weeks for each review). Subsequent reviews will take place with coordination directly between Franson Civil/SIDG and the Applicant. The reviews will repeat as explained above until all items from the checklist have been addressed and plans are to SIDG standards. This typically takes 2-3 reviews. **If the standards in the packet are strictly adhered to, and the improvements to the facilities are well designed, the time involved in this review process can be greatly reduced.**

- **Bonding** is required by SIDG. When the drawings are acceptable, the Applicant will provide a cost estimate to Franson Civil for the construction of SIDG facilities so the bonding amount can be determined. Once the bonding amount has been determined, reviewed and accepted by SIDG, the Applicant will be notified of the amount. An example of a bond letter which outlines the bonding requirements is included in this packet. Once the bonding amount is set, the Applicant should have their bank prepare the bond.
- **Easements** for SIDG facilities must be recorded with the Utah County Recorder. Easements shall be shown on the Plat Map for the subdivision. A signed statement from the landowner stating that the easement will be recorded must be submitted if the easement has not been recorded at this point in the process. Proof of record for the irrigation easements or the signed statement must be submitted to Franson Civil before the Encroachment Agreement will be prepared. Easements shall be in the name(s) of the individual SIDG company, not SIDG.
- An **Encroachment Agreement** will be prepared between the Applicant and the individual SIDG company (or companies) once all of the above mentioned items have been completed. Four copies of the agreement will be sent to each applicable SIDG company for signature. The Applicant will then be contacted to sign the agreement at the SIDG office in Springville.
    - A draft of the Encroachment Agreement will be sent to the Applicant and each applicable SIDG company for review when the drawing review is completed. The agreement stays the same for most projects, so it can save time by reviewing the example agreement that is included in the Instruction Packet.
    - Springville Drainage District will only review and approve agreements to be signed at their monthly board meeting, which is generally held on the fourth Wednesday of the month.
- Once the Encroachment Agreement has been signed by the Applicant and the individual SIDG company (or companies), permission has been granted to the Applicant to begin the construction phase in accordance with the agreement(s).
- The Applicant is required to notify SIDG and Franson Civil at least 24 hours in advance of beginning construction on irrigation facilities, as outlined in the agreement.
- A representative from SIDG will make occasional site visits for construction review of the facilities to ensure they are completed in accordance with the agreement.
- After construction is complete, a **final walkthrough** will be done by Franson Civil and SIDG to identify any final items that need to be completed before work is accepted by

SIDG. A **punch list** will be prepared and sent to the Applicant listing items required, as applicable.

- Recording of easement(s) through the Utah County Recorder's Office should be completed (if not already done so) once construction is complete. If construction changes altered where SIDG facilities were installed and the easement was already recorded, an updated easement document will need to be recorded prior to acceptance by SIDG.
- When all these items are complete, SIDG will send a **letter of acceptance** to the Applicant and Springville City stating the irrigation company facilities are complete.

Enclosed in this packet are:

- Large Subdivisions and General Encroachment Application
- Small Subdivisions Application
- Development Design Checklist (to assist the Applicant's engineer in designing plans to SIDG standards)
- Bond Letter Example
- Encroachment Agreement Example

SPRINGVILLE AREA IRRIGATION AND DRAINAGE GROUP

LARGE SUBDIVISIONS AND GENERAL ENCROACHMENT

Application for Agreement to Encroach and Construct within
Springville Area Irrigation and Drainage Group (SIDG) Right-of-Way or Easement
(for developments greater than 2.5 acres)

1. Applicant for Encroachment Agreement (Applicant): _____
   _____
   Mailing Address: _____
   Contact Person: _____
   Telephone Number: _____
   Email: _____

2. Legal Name of Owner for Agreement: _____
   Owner Mailing Address: _____
   Signatory Name: _____
   Telephone Number: _____
   Email: _____

3. Contact Person (if different than #2): _____
   Mailing Address: _____
   Telephone Number: _____
   Email: _____

4. Engineering Company: _____
   Mailing Address: _____
   Telephone Number: _____
   Contact Person: _____
   Email: _____

5. Brief Description of Proposed Construction (include location and subdivision name, if applicable): _____
   _____
   _____

6. Attach two (2) 11x17 copies of plans/design drawings for the proposed construction. Also, email a digital plan set to Todd Adams. Plans shall be drawn to SIDG standards. A Design Checklist has been prepared to assist engineers in designing to SIDG standards.

7. Attach a check for $12,000 for the application and review fee. The application fee will be used by SIDG for purposes of administration, coordination, engineer review, preparation of agreements, construction review, legal guidance, and any other expenses it incurs related to this application. If fees incurred by SIDG are greater than the application fee, the Applicant will be responsible to reimburse SIDG for the remainder of the expenses.

   Please make all checks payable to: **Springville Irrigation Company**.

8. Send application, plans, and application fee by mail or email to:

   Franson Civil Engineers
   Attn: Canal Reviews
   1276 South 820 East, Suite 100
   American Fork, UT 84003
   Telephone: (801) 756-0309
   Email: encroachment@fransoncivil.com

9. The following persons are available for consultation:

Al Alvarez	(801) 491-2985	SIDG Coordinator
Albert Harmer	(801) 310-2344	SIDG Coordinator
Kyle DeVaney, P.E.	(801) 756-0309	Franson Civil Engineers

NOTES:

1. The SIDG bonding requirements are as follows: Bonding will equal the total cost of irrigation and drainage facilities. Eighty percent of the bond will be released upon completion of construction, approval by SIDG, and successful delivery of water through the system for a full irrigation season. Twenty percent of the bond will be released two years after the project has been accepted and approved by SIDG, pending no problems with the facilities. All bond releases are subject to approval by SIDG.
2. Easements for SIDG must be recorded with the Utah County Recorder. The recorded document, or a signed statement stating the easement will be recorded, must be provided to FCE prior to the encroachment agreement being released for signatures.
3. Starting construction without prior written approval in the form of an encroachment agreement from SIDG may result in an additional fee assessment of $10,000. This fee may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
4. If review costs exceed the fees paid with this application, additional costs will be the responsibility of the Applicant. Additional costs may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
5. The review process will not begin until the application fee is paid.
6. This application is valid for six months from the date it is submitted. The encroachment agreement must be signed within this six month period. Once the encroachment agreement is signed, the Applicant has one year to complete work on irrigation and drainage facilities.
7. This application cannot be sold to other parties. If the Applicant chooses to sell the property associated with this application, the application is voided and the new owner is required to begin the application process again.

I have read, understood, and agree to the terms of this application.

_____	_____	_____
Signature of Applicant	Printed	Date

SPRINGVILLE AREA IRRIGATION AND DRAINAGE GROUP

SMALL SUBDIVISIONS

Application for Agreement to Encroach and Construct within
Springville Area Irrigation and Drainage Group (SIDG) Right-of-Way or Easement
(for developments 2.49 acres or smaller)

1. Applicant for Encroachment Agreement (Applicant): _____
   _____
   Mailing Address:_____
   Contact Person: _____
   Telephone Number: _____
   Email: _____

2. Legal Name of Owner for Agreement: _____
   Owner Mailing Address:_____
   Signatory Name: _____
   Telephone Number: _____
   Email: _____

3. Contact Person (if different than #2): _____
   Mailing Address: _____
   Telephone Number: _____
   Email: _____

4. Engineering Company: _____
   Mailing Address:_____
   Telephone Number: _____
   Contact Person: _____
   Email: _____

5. Brief Description of Proposed Construction (include location and subdivision name, if applicable):_____
   _____
   _____

6. Attach two (2) 11x17 copies of plans/design drawings for the proposed construction. Also, email a digital plan set to Todd Adams. Plans shall be drawn to SIDG standards. A Design Checklist has been prepared to assist engineers in designing to SIDG standards.

7. Attach a check for $5,000 for the application and review fee. The application fee will be used by SIDG for purposes of administration, coordination, engineer review, preparation of agreements, construction review, legal guidance, and any other expenses it incurs related to this application. If fees incurred by SIDG are greater than the application fee, the Applicant will be responsible to reimburse SIDG for the remainder of the expenses.

   Please make all checks payable to: **Springville Irrigation Company**.

8. Send application, plans, and application fee by mail or email to:

   Franson Civil Engineers
   Attn: Canal Reviews
   1276 South 820 East, Suite 100
   American Fork, UT 84003
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NOTES:

1. The SIDG bonding requirements are as follows: Bonding will equal the total cost of irrigation and drainage facilities. Eighty percent of the bond will be released upon completion of construction, approval by SIDG, and successful delivery of water through the system for a full irrigation season. Twenty percent of the bond will be released two years after the project has been accepted and approved by SIDG, pending no problems with the facilities. All bond releases are subject to approval by SIDG.
2. Easements for SIDG must be recorded with the Utah County Recorder. The recorded document, or a signed statement stating the easement will be recorded, must be provided to FCE prior to the encroachment agreement being released for signatures.
3. Starting construction without prior written approval in the form of an encroachment agreement from SIDG may result in an additional fee assessment of $10,000. This fee may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
4. If review costs exceed the fees paid with this application, additional costs will be the responsibility of the Applicant. Additional costs may be taken from the bond if the Applicant does not pay within 30 days upon receipt of a written invoice.
5. The review process will not begin until the application fee is paid.
6. This application is valid for six months from the date it is submitted. The encroachment agreement must be signed within this six month period. Once the encroachment agreement is signed, the Applicant has one year to complete work on irrigation and drainage facilities.
7. This application cannot be sold to other parties. If the Applicant chooses to sell the property associated with this application, the application is voided and the new owner is required to begin the application process again.

I have read, understood, and agree to the terms of this application.

_____	_____	_____
Signature of Applicant	Printed	Date

Project: _____ Engineer: _____

Date: _____

DEVELOPMENT DESIGN CHECKLIST

This checklist is intended to assist engineers in designing projects to Springville Irrigation and Drainage Group (SIDG) standards. All projects seeking acceptance by SIDG must be designed to these standards. When used correctly, this checklist will expedite the review and encroachment agreement process. Not all items on this checklist will be applicable to every project.

Neither SIDG nor Franson Civil Engineers (Franson Civil) will have responsibility for design or construction of Applicant's facilities. It is the responsibility of the Applicant and their engineer to design the project to SIDG standards. No approval or acquiescence by SIDG or Franson Civil will operate as a waiver or modification of SIDG standards.

SIDG Standard Drawings (Standard Drawings) are available for reference and are to be used as design examples. Standard Drawings, being design examples, do not represent an actual site specific design and are not to be directly included in the drawings. Final development drawings must be designed and prepared by a licensed Professional Engineer.

The Applicant will install the facilities that are constructed through the application process with no interruption of SIDG operations.

Note: This checklist is updated when standards are amended. Checking for the latest version of this checklist at www.fransoncivil.com/canal-applications will ensure the most up-to-date information. SIDG reserves the right to make exceptions to the standards or impose other requirements, depending on the Applicant's project.

GENERAL

- ☐ Appropriate application must be filled out and all application fees submitted.
- ☐ All drawings must be stamped, signed, and dated by a licensed Professional Engineer, which can be completed after all drawing reviews by SIDG and Franson Civil.
- ☐ Show all existing irrigation ditches and drain lines affected by development, including storm drain discharge locations. The exact location of drain lines is not always known. Potholing is required to locate the drains before the design is started.
- ☐ If any SIDG facilities are located during construction that are not identified on the drawings, Applicant shall work with SIDG through drawing reviews and then shall perform what work is required to cause the SIDG facilities to remain functional for use by SIDG. All work shall be to SIDG standards. All costs are the responsibility of the Applicant.
- ☐ Show new location of all ditches and drain lines. All open channel ditches must be piped.
- ☐ All storm drainage must route through an orifice and oil/water separator before entering SIDG facilities.
- ☐ Submit Plat Map; all SIDG facilities must have recorded easements (see Easements section).

- ☐ Before submitting drawings to Franson Civil, verify all notes, references, labels, and streets are clearly labeled.
- ☐ Bonding is required on all SIDG facility improvements. After drawings have been deemed acceptable by Franson Civil, please submit a detailed cost estimate of construction (materials and labor) of SIDG facilities. Once this has been checked, the bond amount will be set.

ADD THE FOLLOWING NOTES TO DRAWINGS UNDER HEADING "SPRINGVILLE IRRIGATION & DRAINAGE GROUP NOTES"

- ☐ Contractor must notify Franson Civil Engineers at least 24 hours before construction on Springville Irrigation and Drainage Group facilities. Call Kyle DeVaney, P.E., with Franson Civil Engineers at 801-756-0309. Failure to do so may result in a $10,000 fine.
- ☐ Springville Irrigation and Drainage Group contact during construction: Tom Stetser, Water Master, 801-427-2240.
- ☐ All construction must be done to Springville Irrigation and Drainage Group Standards.
- ☐ Contractor must document all new pipes by video camera after installation and backfill. Any problems with joints, levels, slopes, etc. discovered by the video technicians must be repaired. A digital copy of the video must be submitted to Kyle DeVaney, P.E., of Franson Civil Engineers.
- ☐ Prior to backfilling of pipes, the contractor must notify Kyle DeVaney, P.E., of Franson Civil Engineers so a GPS survey of the location and elevation of the installed pipelines can be performed.
- ☐ Fences disturbed during construction activities must be replaced and returned to pre-construction conditions, or better.
- ☐ All backfill materials shall be compacted to a minimum of 95% standard Proctor density.
- ☐ All concrete used in construction shall have a minimum compressive strength of 4,000 psi. The concrete mix shall include between 5% and 7% air entrainment.

PIPES

- ☐ All existing and new pipes on all drawings must be specifically labeled for pipe type and size (e.g., 24-inch RCP). Any pipe replacing a ditch shall have a minimum inside diameter of 18 inches.
- ☐ SIDG requires all new pipes to be RCP, except as noted in the following bullet item.
- ☐ Pipe placed in planting strips or areas where plants, other than grass, will be placed in the easement must be fused HDPE pipe. Specify inside diameter, pressure rating, etc. A DR Rating of 32.5 is required for all HDPE pipe. HDPE shall be specified using the inside diameter.
- ☐ All pipe sizes must be designed to carry sufficient flow for irrigation and 25-year storm water events according to Springville City's Storm Water Master Plan. Also, an additional 20% capacity must be available in the pipe for future expansion and storm drain capacities. Coordinate with Franson Civil for flow requirements before beginning design of irrigation facilities.

- ☐ Plan and profile view of each pipe is required.
- ☐ Trench detail is required showing bedding detail. SIDG standards require bedding 6 inches below pipe up to the springline, using a minimum of 1-inch clean crushed rock unless specified otherwise by the manufacturer.
- ☐ Metallic warning tape (labeled "Caution: Buried Irrigation Line Below") must be installed a minimum of 1 foot above the pipe. In some circumstances, a locating wire may be required.
- ☐ All new pipes must be documented by video camera after installation and backfill. Any problems with joints, levels, slopes, etc. discovered by the video technicians must be repaired. A digital copy of the video is to be submitted to Franson Civil.
- ☐ Pipes or other utilities running parallel to the irrigation pipe in a shared easement shall be placed a minimum of 5 feet horizontally distanced from the irrigation pipe.
- ☐ Pipes crossing perpendicularly over or under the irrigation pipe shall have a minimum 1-foot vertical clearance.
- ☐ Before backfilling the pipes, the contractor must notify Kyle DeVaney, P.E., of Franson Civil Engineers so a GPS survey of the location and elevation of the installed pipelines can be performed.

Irrigation/Cleanout Boxes

- ☐ Detail drawings are required for irrigation boxes.
- ☐ Irrigation cleanout boxes are required a minimum of every 500 feet, at all alignment changes, on each side of a road crossing, and where two pipes of a different type come together.
- ☐ All boxes must be labeled showing inside and outside dimensions. Boxes shall be a minimum of 3 feet by 3 feet inside.
- ☐ Boxes must show all pipes entering and exiting. There shall be a minimum of 6 inches on each side of the pipe to the edge of the box. Boxes must be labeled to show distance between pipe and bottom of box (minimum 6 inches).
- ☐ Boxes must show all gates with gate detail or specifics as to gate type, size, flow direction, etc. Waterman C-10 canal gates are required.
- ☐ Lid/grate detail required:
  - Solid lids marked "IRRIGATION" are required when debris and soil can enter.
  - Grates should be used on diversion boxes with gates and where debris will not enter.
- ☐ An overflow box is required on irrigation lines that carry storm water to allow high storm flows to bypass the gates.
- ☐ <u>Notes to add to plans under header, "Springville Irrigation & Drainage Notes"</u>
  - Knock out boxes are not allowed. All boxes shall be pre-cast with cored openings for the pipes or shall be cast-in-place.
  - Pipes entering boxes should be concreted on the outside and grouted on the inside.

- Irrigation boxes shall not be buried. They shall extend to the surface of the final grade. Any existing boxes that will not extend to the final grade surface shall be extended to match the final grade.

Inlet and Outlet Structures

- ☐ Flared end sections are required (pre-fabricated or cast-in-place) where a pipe will connect to a soil-lined ditch. Where a pipe will connect to a concrete-lined ditch, cast-in-place concrete shall be used and formed as a gradual transition from the pipe to the ditch. SIDG standard is a concrete flared end section.
- ☐ On small turnouts that enter an open ditch for a single field, a flared end is not required. Instead, a 6-foot-long pipe shall be connected to the pipe, and native soil material can be used as a transition from the pipe to the ditch.
- ☐ Trash racks are needed for all inlets from open ditches showing:
  - Spacing details: 4-inch spacing for most inlets, 8-inch spacing for pipes over 36 inches in size
  - Slope 2:1 (H:V) or flatter
  - Mounting details
- ☐ If transitioning to or from a soil-lined ditch, the detail should show riprap appropriately designed to protect the structure:
  - Riprap sized for velocities, and
  - Appropriate length and location for riprap.

DRAIN LINES (Underground Land Drains)

- ☐ All existing drain lines shall be potholed at the development boundaries and shown on the plans. Label each location where the drain lines were potholed. Also, show the approximate location of existing drain lines by viewing the SIDG map. A map in the area of your subdivision can be requested from Franson Civil.
- ☐ All existing land drains on the developed property, and under roads to be improved around the property, are required to be improved to current standards. Show proposed drain line locations. The new drain line shall connect with the existing drain line on adjacent properties.
- ☐ Pipe size should match the existing size of the underground land drain lines, but shall have a minimum diameter of 8 inches.
- ☐ Pipe should be ADS N-12 with manufactured perforations.
- ☐ A trench detail of the proposed land drain is required.
- ☐ The soil is predominantly clay in the area. Backfill the perforated pipe with at least 1 foot of 1-inch crushed clean gravel around the pipe.
- ☐ A geotextile fabric of Mirifi 140 N series or equivalent should be wrapped around the 1-inch crushed clean gravel. Any equivalent geotextile fabric must be approved by the SIDG engineer prior to approval of the drawings.

- ☐ In areas with high clay content in the soil, SIDG will perform a test on the proposed fabric. If clay plugs the fabric, it will only be required on the top of the gravel.
- ☐ Metallic warning tape (labeled "Caution: Buried Irrigation Line Below") must be installed a minimum of 1 foot above the pipe. In some circumstances, a locating wire may be required.
- ☐ Manhole lids must be marked as "DRAIN" only. Sewer, Water, Storm Drain, etc. are not acceptable.
- ☐ Drain line cleanout boxes are required every 500 feet, minimum, and at all alignment changes. Boxes are also required on each side of road crossings.
- ☐ An easement for all drain lines must be recorded (see Easements section).
- ☐ Notes to add to plans under header, "Springville Irrigation & Drainage Notes"
    - Clay cutoffs are required every 250 feet on sewer and other lines that are deeper than drain lines to prevent water from following the pipe trench. Clay cutoffs must be 2 feet long, keyed into the trench walls 1 foot, surrounding the pipe, and as high as the drain lines.
    - Pipes or other utilities running parallel to the drain lines in a shared easement shall be placed a minimum of 5 feet horizontally distanced from the drain lines.
    - Pipes crossing perpendicularly over or under the drain lines shall have a minimum 1-foot vertical clearance.

EASEMENTS

- ☐ Easements are required to be recorded with the Utah County Recorder for all SIDG facilities:
    - Plat Maps are best to have these easements recorded.
    - If the plat has already been recorded, the owner can grant the easement with a legal description and have this recorded.
    - Proof of the record must be submitted to Franson Civil.
- ☐ Easements are 20 feet wide minimum, centered over the pipe. Any changes in the easement width will need to be reviewed by SIDG. Ditch easements should be in the name of the specific irrigation company. Drain line easements should be in the name of the Springville Drainage District.
- ☐ If Applicant does not provide proper easements in a timely manner, SIDG may use the bond for any costs associated with procuring the easements necessary for their facilities.
- ☐ Note to be added to the Plat Map: "No trees, shrubs, telephone boxes, or power boxes are allowed in Irrigation Company or Springville Drainage District easements."

STORM WATER AND DETENTION BASIN

- ☐ Detention basins must be above the top of the discharge irrigation pipe to prevent backflow into the detention basin. Show elevations of the detention basin.

- ☐ All storm drainage must route through an orifice and oil/water separator before entering SIDG facilities.
- ☐ Orifice plate must be galvanized steel or aluminum and sized correctly. The acceptable flow rate into SIDG facilities is 0.15 cfs per acre of land. State the acreage of the development.
- ☐ Trash rack or grate is required on outlet of pond.

BOX AND PIPE CULVERTS – For road crossings of Dry Creek and large canals

- ☐ If extending an existing box culvert, SIDG recommends that the Applicant perform a reasonable inspection of the existing culvert to make a determination of whether it should be replaced instead of extended.
- ☐ Applicant is responsible to verify that culvert design will not negatively impact the hydraulics of the system, including other existing structures in the area.
- ☐ A plan view is required of the culvert showing the centerline of the canal, the top of banks, and the SIDG easement.
- ☐ Show the elevation and location of the top of the banks, bottom of the banks, and the channel prism, as well as new structures including box culvert and wing walls.
- ☐ Trench detail is required showing bedding, backfill material, and compaction requirements.
- ☐ The dimensions and type of culvert must be labeled.
- ☐ Label the culvert with loading information and rebar details. Loading shall be determined by the Applicant.
- ☐ The culvert wing walls should flare at a 45-degree angle then a 90-degree angle into the channel banks, a minimum of 2 feet perpendicular to the channel banks. Placement of the wing walls cannot interfere with the O&M road. The top of the wing walls shall be a minimum of 12 inches above the high water mark in the channel.
- ☐ Wing walls shall be tied into the channel banks in a manner that provides a smooth transition from the channel into the culvert, and back out of the culvert on the outlet side.
- ☐ If using a pre-cast wing wall/end section, the wing walls, apron, and cutoff wall must be one piece.
- ☐ If cast-in-place concrete is placed next to pre-cast concrete, Waterstop RX or an approved equivalent shall be placed to prevent seepage between the surfaces.
- ☐ If extending an existing box culvert, Waterstop RX, Swellstop, or an approved equivalent, shall be placed between the old culvert and the new culvert to prevent seepage. Mastic is not acceptable.
- ☐ A concrete apron shall be between the wing walls.
- ☐ Concrete cut-off walls are required on the inlet and outlet, a minimum of 2 feet below the bottom of the concrete slab (apron). These cutoffs are required to extend into the banks to the ends of the wing walls.

- ☐ The structure must be able to handle the maximum flow capacity of the channel. The Applicant is responsible for verifying maximum flows and designing appropriately. The culvert cannot cause water to backup further upstream. Neither SIDG nor Franson Civil has flow data available. The typical minimum culvert size is 6 feet tall. However, site conditions may determine that this dimension be altered.
- ☐ Detail should show riprap, appropriately designed to protect the banks and structure:
    - Riprap sized for velocities.
    - Appropriate length and location for riprap. Riprap not generally required on inlet.
    - Riprap shall be placed up to the high water mark in the channel.
    - Top of riprap to be level with top of concrete apron.
- ☐ State on the plans the backfill material and methods for filling and compacting around the box and wing walls. Backfill around the box culvert shall meet manufacturer's specifications for compaction and materials, or a minimum of 92% modified Proctor density.
- ☐ Place a minimum of 24 inches of clay material behind wing walls, compacted to a minimum of 92% modified Proctor density.
- ☐ All other backfill material around head walls and in an open canal channel to be compacted to a minimum of 92% modified Proctor density.
- ☐ A 6-foot chain-link fence or 4-foot parapet wall is required on all box culverts that carry pedestrian traffic. Exceptions may occur where local ordinances note otherwise, and upon approval by SIDG and Franson Civil.
- ☐ Access to the O&M road shall be installed with curb cuts at drive approaches and thickened concrete at sidewalks.
- ☐ Casings under the culvert must be shown on the plan and profile view.
- ☐ Casing pipes shall be continuous under the box culvert and shall be either fused HDPE or welded steel, depending on the site and soil conditions.
- ☐ In locations where steel casing pipe is used, soil tests for resistivity shall be done and submitted to Franson Civil. Soils with a soil resistivity (ohm cm) of 2,500 or less shall have cathodic protection with a 25-year life or have cellular concrete placed in the annular space between the carrier pipe and casing pipe.
- ☐ Casings must have a minimum of 2 feet between the top of the casing and the bottom of the box culvert.
- ☐ Casings shall extend outside the channel easement.
- ☐ The carrier pipe must have adequate steel-banded skids.
- ☐ Waterline pipes inside the casings shall have restraining joints.
- ☐ Adequate thrust blocks are required on all bends for DIP, PVC, or PIP waterlines.
- ☐ Bedding material must be shown, as appropriate for the design.
- ☐ Identify existing conduits and utilities under the channel.

- ☐ Identify each new conduit being placed under the channel.
    - If the conduit owner/occupier is known, label as such.
    - If the conduit is to remain empty, label as such.
- ☐ Notes to add to plans under header, "Springville Irrigation & Drainage Group Notes"
    - Channel floor and embankment material removed for excavation (between apron and undisturbed canal) shall be replaced with a 12-inch minimum thickness of 10^{-6} cm/sec permeability clay material in 6-inch maximum lifts.
    - Compaction around the box culverts to meet manufacturer requirements or a minimum of 92% modified Proctor density.
    - Channel embankment shall be shaped to match the existing channel prism.
    - Compaction test results must be submitted to Franson Civil Engineers. All failed material shall be removed and compacted to specifications. Testing must be performed by a licensed soils lab.
    - Open-cut trenches shall be cut at a minimum of 2-horizontal to 1-vertical so that backfill can be properly compacted.
    - Trench plugs are to be placed at each end of casings.
    - Trench plugs are to extend the width of trench, 12 inches above and below casing pipes, and with a thickness of 24 inches.
    - Trench plugs shall be a 10% bentonite and 90% clay mixture.
    - PVC water stop, or equivalent, is required in all joints of cast-in-place concrete.
    - Conduits shown on these drawings do not give permission for the conduit to be occupied by an entity other than the original Applicant. Each entity crossing the canal must apply for, and receive, an encroachment agreement from the Springville Irrigation and Drainage Group.
    - Signs must be placed at each entrance to the operation and maintenance road that state:
        - No Trespassing. Warning: Channel Maintenance Road, Authorized Personnel Only. No Swimming or Tubing.

BORING – For pipe crossings of Dry Creek and large canals

- ☐ All facilities (utilities, pipes, etc.) installed under the canal (even under box culverts) must be encased in a welded steel, fused HDPE solid wall, or fused PVC casing. Minimum casing thickness can be found on the standard drawings. Verification that the minimum thickness is sufficient is the responsibility of the Applicant.
- ☐ In locations where steel casing pipe is used, soil tests for resistivity shall be completed by the Applicant and at the Applicant's expense. Test results shall be submitted to Franson Civil. Soils with a soil resistivity (ohm cm) of 2,500 or less shall have cathodic protection with a 25-year life or have cellular concrete placed in the annular space between the carrier pipe and casing pipe.

- ☐ Casings must have a minimum of 2 feet between the top of the casing and the bottom of the box culvert or concrete-lined canal, and 4 feet between the top of the casing and the earthen canal bottom. In areas with sand or cobbles, this distance may need to be increased. The actual safe depth is to be determined by the Applicant's engineer.
- ☐ The casing shall extend outside the canal corridor.
- ☐ Bore pits must be located outside the canal corridor.
- ☐ The carrier pipe must have adequate steel-banded skids.
- ☐ Waterline pipes inside the casings shall have restraining joints.
- ☐ Adequate thrust blocks are required on all bends for DIP, PVC or PIP waterlines.

<u>Notes to add to plans under header "Springville Irrigation & Drainage Group Notes"</u>

- ☐ Contractor to notify Kyle DeVaney, P.E., of Franson Civil Engineers when trench plugs are installed. Verification of trench plug completion must be performed by Franson Civil Engineers before backfilling. Kyle can be reached at 801-756-0309.
- ☐ Bore pit compaction shall be 92% modified Proctor density.
- ☐ Trench plugs are to be placed at each end of the casing.
- ☐ Trench plugs are to extend the width of trench, 12 inches above and below casing pipes, and with a thickness of 24 inches.
- ☐ Trench plugs shall be 10% bentonite and 90% clay mixture.
- ☐ Compaction test results must be submitted to Franson Civil Engineers. All failed material shall be removed and compacted to specifications. Testing must be performed by a licensed soils lab.

"[Date]"

Springville Irrigation Company
P.O. Box 745
Springville, UT 84663
Ph. (801) 491-2985

To Springville Irrigation Company:

"[Bank Name]" does hereby establish a Performance Bond in favor of Springville Irrigation Company ("Company"). This bond is to ensure the installation of irrigation and drainage facilities to be installed as part of a land development known as plats "[Plat Phase]" and "[Plat Phase]" of "[Development Name]" located at "[Approx. Street Address]" in Springville, Utah 84663. Said subdivision is owned and developed by "[Main Contact Full Name]" of "[Development Company]" ("Developer"). This Performance Bond is for One-Hundred Percent (100%) of the total cost of the improvements.

Eighty Percent (80%) of the bond shall be released to Developer upon completion of construction. Completion of construction is defined as all new construction over and around the new facility has been completed, the pipe inspection video has been submitted to Franson Civil Engineers, the irrigation facility has been reviewed and accepted by the Company, and water has been successfully delivered through the system for up to a full irrigation season.

The remaining Twenty Percent (20%) of the bond will be released to Developer two years after the project has been accepted and approved by the Company, pending no problems with the facilities. All bond releases are subject to approval by the Company.

In the event that the irrigation facility is not installed by Developer within one year of this dated letter, Company may make demand upon account #"[Account Number]" at "[Bank Name]", for any portion of the bond for this project to complete the facilities. Demand upon said account may also be made to recover additional costs incurred by the Company by reason of the encroachment on their facilities (application fees), costs related to procuring easements, or penalties associated with starting construction prior to having signed agreements. Company is not required to provide any notice to Developer prior to making demand upon this bond.

The full amount of the bond being held by "[Bank Name]" is $"[Bond Amount]" in account #"[Account Number]" . Funds will only be released upon written request from an authorized representative of the Company.

Sincerely,

"[Bank Personnel Name]"
"[Title]"

"[IRRIGATION COMPANY NAME]"
ENCROACHMENT AGREEMENT
WITH
"[APPLICANT COMPANY NAME]"

This Encroachment Agreement is made and entered into by and between "[Irrigation Company Name]" , a Utah non-profit corporation, P.O. Box 745, Springville, Utah 84663 ("Company") and "[Applicant Company Name]" , "[Applicant Company Address]" ("Applicant").

WITNESSETH

WHEREAS, Applicant desires to obtain Company's consent to encroach upon Company's easement and related facilities to install "[Description of Work]" and related facilities, and;

WHEREAS, Company does not object to the encroachment, provided the terms of this Agreement are strictly adhered to, and provided the construction work and facilities as constructed do not in any manner whatsoever interfere with Company's use, operation, maintenance, and repair of Company facilities.

NOW THEREFORE, in consideration of the mutual benefits that will accrue to the parties hereto, the parties agree as follows:

1. Purpose.

The purpose of this Agreement is to describe the conditions under which Applicant may install "[Description of Work]" and related facilities and discharge stormwater into Company facilities ("Works") within the Company easement granted by Applicant. This Agreement shall be limited to said purpose, and Applicant shall have no right to alter the Works in any manner without the prior written approval of Company.

2. Location.

The Works shall be located on the Company easement and related facilities at approximately "[Project Address]" in Springville, Utah, as referenced on the drawings labeled '"[Drawing Title Block]" ' (attached hereto as Exhibit A).

3. Construction and Installation.

Applicant has submitted drawings to Company, copies of which are attached as Exhibit A. Applicant shall construct and install the Works strictly in accordance with the drawings as redlined by Company. Any encroachment of Company facilities prior to this Agreement is subject to a $5,000 fine. Applicant agrees to pay Company said $5,000 fine within 30 days upon receipt of an invoice, or bonds held by Company may be used. The Works must be completed in accordance with this Agreement within 1 (one) year of the date of execution. All construction and installation

activities must take place between October 31st and April 1st. Failure to comply may result in agreement termination and monetary fines.

4. Easement.

Due to the Works being installed in a location outside the Company's prescriptive easement, Company requires a new easement for their facilities. Applicant shall grant a [Easement_Width] foot wide permanent easement ("Easement") in the name of "[Irrigation Company Name]" for the Works and for access to the Works. The Easement may be recorded on the Plat Map by Applicant, or through a Company approved alternative method.

If the Works are installed outside the recorded Easement, Applicant shall prepare new documentation and record a new easement in the location of the Works. If the Applicant does not record an easement for the Works in a timely and/or satisfactory manner, Company may prepare easement documents and record them. Applicant agrees to reimburse Company any costs incurred by Company as a result of the easement within 30 days upon receipt of an invoice, or bonds held for the Works may be used for reimbursement.

5. Acceptance by Company and Warranty by Applicant.

Before the project will be given final approval, Applicant shall pay any additional expenses incurred by Company in excess of the application fees. Applicant agrees to reimburse Company any excess fees incurred by Company as a result of this Agreement, the full amount of such additional expenses due within 30 days upon receipt of an invoice, or bonds held by Company may be used for reimbursement. Upon completion of construction of Works by Applicant and final acceptance by Company engineers, Company shall accept ownership of and responsibility for the operation, maintenance, and repair of Works. Applicant warrants that the Works shall be free of any defects of material or labor for a period of 2 (two) years from the date of acceptance herein ("Warranty Period").

6. Rights Reserved.

This Agreement and all rights hereunder shall be held by Applicant, at all times subordinate and subject to the rights of Company to use, operate, maintain, repair, and replace the Company ditch and related facilities. Company reserves the right to allow others to encroach upon the ditch and related property to construct facilities that do not interfere with the Works.

7. Hold Harmless.

Company does not assume any liability resulting from this Agreement or the exercise thereof by the Applicant.

Applicant shall indemnify, defend, and hold Company harmless from any injury or damage to any persons or property, and/or claims of injury or damage made by third parties (whether or not such claims of third parties are meritorious) that result from or are claimed to result from, in whole or in part, any act, error, omission, or fault of Applicant, the exercise of any of the privileges

under this Agreement, or any design, construction, operation, use, maintenance, repair, or replacement of the Works.

Applicant shall defend, indemnify, and hold Company harmless from and against any action that challenges Applicant's use of the Company ditch or related properties.

Applicant shall be strictly responsible for any damage to, obstruction of, or interference with the use, operation, maintenance, repair, or replacement of the Company ditch or related facilities caused in whole or in part by Applicant and/or the design, construction, operation, use, repair, or replacement of the Works.

Company makes no warranty, express or implied, as to the extent or validity of the rights granted under this Agreement.

Applicant agrees that if, during the Warranty Period, the operation, maintenance, or repair of Works is made more expensive by reason of this Agreement, Applicant will reimburse Company the full amount of such additional expenses within 30 days upon receipt of an invoice, or bonds held by Company may be used for reimbursement.

8. Preservation of Natural Landscape.

Applicant shall exercise care to preserve the natural landscape and shall conduct its construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. All trees, native shrubbery, and vegetation outside the immediate area of the Works, or otherwise designated to remain, shall be preserved and shall be protected from damage. Upon completion of the installation of the Works, the construction site shall be smoothed and graded in a manner to conform to the natural topography of the landscape and shall be repaired, replanted, reseeded, or otherwise corrected, as directed by Company at Applicant's expense.

9. Termination.

Upon a good faith determination by the Company Board of Directors that there has been a material default by Applicant to strictly comply with the terms of this Agreement, Company may, at its option, terminate this Agreement by giving Applicant 20 (twenty) days prior notice of said default during which the Applicant shall have an opportunity to cure said default to avoid termination.

10. Assignment.

This Agreement shall not be assigned or transferred by Applicant without the prior written consent of Company, which consent shall not be unreasonably withheld.

11. Entire Agreement.

This Agreement constitutes the entire Agreement between the parties and cannot be altered except through a written instrument signed by the parties. This Agreement supersedes all previous agreements related to the subject matter herein, whether written or oral.

12. Governing Law.

This Agreement shall be enforced and governed under the laws of the State of Utah, and jurisdiction for any action based on this Agreement shall be with the District Court of Utah County, State of Utah.

13. Special Construction Conditions.

a. Applicant shall notify Franson Civil Engineers and the Company representative 1 (one) week prior to construction. Notification must be given 24 (twenty-four) hours prior to the beginning of construction work and shall make re-notification of re-commencement of work following any cessation of work for more than 4 (four) days. The contact person at Franson Civil Engineers is Kyle DeVaney. His phone number is (801) 756-0309. The Company representative is Al Alverez. His phone number is (801) 427-2240.

b. The Works shall be built according to the drawings titled '"[Drawing Title Block]" ' (attached hereto as Exhibit A) and shall incorporate all redlines from Franson Civil Engineers' review.

c. All construction must be completed to Company standards.

d. All concrete used in construction shall have a minimum compressive strength of 4,000 psi. The concrete mix shall include between 5% and 7% air entrainment.

e. Layback all slopes of embankment cut at 2 horizontal to 1 vertical so that backfill can be properly compacted.

f. Embankment material removed for excavation shall be re-compacted to meet a standard Proctor density of 95%.

g. If the Company is not satisfied with the compaction efforts, Applicant may be required to perform compaction testing at Applicant's cost. All failed material shall be removed and recompacted to specifications.

h. All embankment materials shall be compacted impermeable soils.

i. Fences disturbed during construction activities must be replaced or returned to pre-construction conditions.

j. Applicant assumes all liability incurred through the modification of the irrigation facilities. This includes, but is not limited to, all damages associated with failure at or contiguous to the Works.

k. If this construction interferes with the delivery of irrigation water, this Agreement may be terminated pursuant to the Termination section hereinabove.

l. All new pipes must be documented by video camera after installation and backfill. Any problems with joints, levels, slopes, etc. discovered by the video technicians must be repaired. A digital copy of the video must be submitted to Company.

m. No trees, shrubs, or permanent structures are allowed inside Company easements.

n. If any irrigation and/or drainage facilities are located during construction that are not identified in Exhibit A, Applicant shall work with Company through drawing reviews and then shall perform what work is required to cause the irrigation and/or drainage facilities to remain functional for use by Company. All work shall be to Company standards. All costs are the responsibility of the Applicant.

14. Attorney's Fees.

In the event an action is filed in district court as a result of a dispute arising out of this Agreement, the prevailing party shall be entitled to its attorney's fees.

The parties have executed this Agreement to be effective the ___day of _____, [Year]
.

"[IRRIGATION COMPANY NAME]"

Signature:_____

Name (Printed):_____

Title:_____

"[APPLICANT COMPANY NAME]"

Signature:_____

Name (Printed):_____

Title:_____