



IVINS CITY

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CONSTRUCTION DRAWING REVIEW REQUIREMENTS

General Overview:

- First Submittal:
 - Submit the attached Construction Drawing Checklist.
 - Submit three sets of construction drawings, copies or original, stamped by a professional engineer.
 - Submit Storm Water Pollution Prevention Plan per Utah Pollutant Discharge Elimination System (UPDES) requirements.
 - If drainage plan has changed since drainage study submitted with preliminary plan, submit a revised drainage plan or a drainage plan addendum.
 - The approximate review period for the first submittal is 14 days.
- Upon review, one set of construction drawings will be returned with markups for changes required for approval.
- Second Submittal:
 - Submit markup copy of construction drawings from previous submittal.
 - Submit one original set of construction drawings with all utility signatures and professional engineer signature. (Two or more original sets may be submitted if the developer or engineer needs an original set for their own records).
 - Submit construction cost estimate.
 - The approximate review period for the second submittal is 7 days.
- Upon review, if all marked changes were corrected in the second submittal, the original set of construction drawings will be returned with all of the city signatures.
- Final Submittal:
 - Submit the original set of construction drawings.
 - Submit two additional copies of the original construction drawings.
 - Submit an electronic version of the construction drawings and final plat as an Auto CAD file. Auto CAD 2006 or an older version is acceptable.

Construction Plans

General Standards:

- Drawing Size: 24"x 36"
- Title block is located on the right side of sheet and includes:
 - Project title
 - Sheet title
 - Sheet number
 - Name, address, and phone number of engineer
- The engineer's stamp is required on all sheets.
- Minimum text size is 0.08"

Construction Plans must include:

- Title sheet which includes:
 - Sheet index
 - Project title
 - Vicinity map
 - Engineer's certification
 - Project benchmark information
 - Basis of bearings
 - General project boundary and layout map
 - Utility and City signature block
 - Required City Signatures: City Engineer, Public Works Director, Building and Zoning Administrator, Public Safety Officer, Parks and Recreation Director.
 - Required Utility Signatures: Gas, Power, Phone, Postmaster, Cable, Others if applicable (i.e. Ivins Irrigation Co., Interlynx Fiber Optics, St. George City, Santa Clara City, WCWCD).
- Construction Notes Sheet
- Erosion Control Plan and Details
 - Shows the following:
 - Management practices to be employed
 - Temporary and permanent facilities to be installed to control soil erosion and prevent sedimentation impacts to adjacent properties and public facilities during and after construction
- Grading Plan and Cross Sections
 - Minimum scale is 1"=50'
 - Shows the following:
 - Relationship of street to curb, gutter, and sidewalk
 - Top of curb elevations at lot lines and curb returns
 - Curve data for curb returns
 - Existing and proposed contour topography
 - Slopes
 - Building pad elevations
 - Cross sections
 - Top of wall and bottom of wall elevations on retaining walls
 - Drainage flow arrows
- Utility Plans
 - Shows the size, type, and location of the following:
 - Culinary water laterals, mains, meters, valves, and fire hydrants
 - Secondary and irrigation water laterals, mains, valves, etc.

- Sewer manholes, cleanouts, and laterals
- Storm drain inlets, catch basins, manholes, headwalls, subdrains, and outfalls
- Power, natural gas, and cable television
- Street lights
- Sewers and storm drains must have a profile drawing showing depths of pipes, slopes, lengths, and clearances at all pipe crossings. This may be combined with the street profile.
- Shows existing utilities
- Street and Project Entrance Lighting Plan
- Street Plan and Profiles
 - Minimum scale is 1"=50'
 - Shows all of the following:
 - Existing profile of centerline and at both right-of-ways and labeled accordingly
 - All existing elevations
 - All existing conditions and structures
 - Stationing
 - Top back of curb elevations
 - Centerline elevations
 - Curve data
 - Typical cross section for all street sizes and variations
 - Shows Pavement and Base thickness design per Geotechnical Evaluation (include in typical cross section).
 - Benchmark location and elevation
 - Street names
 - Tapers (10:1 required at all transitions)
- Landscaping Plan
 - Includes a Planting Plan (plant list).
 - Includes an Irrigation System Plan
 - Shows all valves, controllers, and trunklines
- Detail Sheets (as needed)

Construction Drawing Checklist

Street Design

- All streets meet street design specifications for grades, centerline curve radii, rights-of-way, pavement, curb, gutter, and sidewalk dimensions shown the following table.

Street Design Standards

Street Type	Right-of-Way (feet)	Max. Grade (%)	Cul-de-sac Radius (feet)	Centerline Minimum Curvature (feet)	Design Speed (mph)	Pave-ment (feet)	Side-walk (minimum feet)	Serpentine Sidewalk (minimum feet)	Curb Return Radius (feet) ¹	Curb Type Used
Private	38	8% ²	60	70	15		4 ³	5	15	24"
Residential Standard	50	8% ²	60	100	25	27	5	5	20	24"
Residential Collector	55	8% ²	60	200	25	32	5	6	25	HB30-7 (30")
Minor Collector	60	8%	-	200	30	30	5	6	25	HB30-7 (30")
Major Collector	66	8%	-	400	35	36 min ⁴	5	6	30	HB30-7 (30")
Arterial Minor	80/85	8%	-	700	45	55-60 ⁴	5	6	35	HB30-7 (30")
Arterial Major	100	8%	-	1000	55	4	5	6	40	HB30-7 (30")
Half Width Streets	-	8%	-	-	-	27 ⁵ min.	-	-	-	-

- All streets meet intersection distance standards shown in the following table.

Access Distance From Corner According to Facility Type

Facility Type	Upstream Distance (feet)	Downstream Distance (feet)
Residential Access	50	50
Local Residential	50	50
Residential Standard	50	50
Residential Collector	100	75
Major Collector	175	150
Minor Arterial	200	185
Major Arterial	250	230

- All Street intersections are as close to 90° as possible

¹ Curb Return Radius shall use the largest street type found at the intersection

² 12% if approved for sensitive lands

³ Private roads designed with sidewalk on one side only.

⁴ See Transportation Master Plan drawings

⁵ Minimum pavement to be 27 feet or to the centerline of the street type being constructed, whichever is greater

- ❑ Cul-de-sac streets are no more than 600' long, measured from the center of intersection to center of cul-de-sac.
- ❑ Minimum pavement across cul-de-sac is 96' with no parking posted. The radius is measured to property line.

Serpentine Sidewalks

- ❑ Maximum grade of 5%, or 2% greater than the existing/proposed street grade, whichever is less, along the length of the serpentine sidewalk.
- ❑ The sidewalk is no greater than 18" above the top back of curb with a maximum slope to the curb of 3:1.
- ❑ The centerline radius of the serpentine sidewalk is no less than 50'.
- ❑ Adequate pedestrian access to the sidewalks is provided meeting ADA standards.

Sanitary Sewer

Design Flows

- ❑ All hydraulic slopes have a minimum slope as outlined in the following table.

SEWER SIZE (inches)	MINIMUM SLOPE (ft/100 feet)=%
8	.5
10	.5
12	.5
15	.45
18	.45
21	.45
>24	.4

Minimum Size and Depth

- ❑ No public sanitary sewer is less than 8" in diameter.
- ❑ No house connections are less than 4" in diameter.
- ❑ No restaurant connections are less than 6" in diameter.
- ❑ Each lateral connected to the public main serves only one residence, structure, or building.
- ❑ The depth of a sewer main, to top of pipe, is 36" or more below subgrade of roadway.

Alignment

- ❑ All sanitary sewers are laid at least 10' horizontally, measured from edge to edge, from any culinary water main.

Service Connections

- ❑ Service connections to any public sanitary sewer are a minimum of 10' from any culinary water line or tapping.
- ❑ No roof drains, foundations drains, storm drains, or sub-drains are connected to sanitary sewer system.

Manholes

- ❑ Manholes are installed at all changes in grade, size and intersections and at distances no greater than 400' apart.
- ❑ Flow lines of junction-lines entering the manhole at an angle are 0.2' higher than through-line flow line.
- ❑ Manholes for sewer mains of 10" diameter or less have a minimum of 4' inside diameter.
- ❑ Manholes for sewer mains larger than 10", over 12' deep, or where three or more sewer lines intersect (including laterals), have a minimum 5' inside diameter.

- Location and size of existing facilities are verified with city records.

Culinary Water

Minimum Size and Depth

- The minimum depth of cover (to top of pipe) for water mains is 36” below the final grade of the street.
- The minimum size of the water main is 4” in diameter.
- The minimum size of the water main serving any fire hydrant is 8” in diameter.

Valves and Hydrants

- The water system is looped and valves are spaced so that a break in any one length of main will put no more than 600’ of main, and no more than two fire hydrants out of service.
- All distribution mains connecting to larger supply mains are valved near the connection.
- All fire hydrants are valved.

Fire Hydrant Spacing and Location

- Fire hydrants are located at each intersection.
- In residential areas, fire hydrant spacing is no greater than 500’, and no house is greater than 250’ from a hydrant.
- In industrial, business, or commercial areas, fire hydrant spacing is no more than 350’ and no building is more than 175’ from a hydrant.
- All hydrants are offset a minimum of 18” from the walkway.
- All hydrants are installed on dedicated easements or public rights-of-way.
- All hydrants have a 5’ clearance on sides and front, and 3’ on rear.

Miscellaneous Water System Design Criteria

- Water mains are within a right-of-way or easement.
- Dead end mains are avoided wherever possible and if installed are less than 600’.
- Each building is served by a separate meter.
- Service line requirements are met as outlined in the following table.

Service Line	Maximum Units to be Served
1”	5
1 ½”	12
2”	20

- All water mains are laid at least 10’, measured edge to edge, from any sewer main or manhole.
- When a water main crosses over a sewer main, the water main is laid high enough that the bottom of the water main is at least 18” above the top of the sewer pipe.
- Air release-vacuum assemblies and blow off valves are provided on all mains larger than 12”.
- Location and size of existing facilities are verified with city records.

Secondary (Irrigation) Water

- The minimum depth of cover (to top of pipe) is 36” below finished grade.
- Irrigation lines are located in the roadway.
- Irrigation lines are a minimum of 3’ separation from culinary water lines.
- Location and size of existing facilities are verified with city records.

Bike Path

- Bike paths are a minimum of 10’ wide.
- Bike paths are built with a minimum of 2” of type II asphalt over 6” of base course, over prepared sub grade.

Grading per International Building Code (IBC) Appendix J

- The maximum slope of cut surfaces is 2H:1V. (IBC J106.1)
- Benching is required where the existing slope is steeper than 5H:1V and the fill is deeper than 5'. See IBC Figure J107.3.

- Required Not required
 - If benching is required, Figure J107.3 from IBC is included as a detail in construction plans.

- Top of all cut or fill slopes is setback a minimum of 2' from property line (IBC J108.2)
- Top of all cut or fill slopes higher than $h=10'$ (see IBC Figure J 108.1) is setback at a minimum of $h/5$ feet from property line. (Maximum set back is 10')

Terraces (IBC J109.2)

Terraces are required on all cut or fill slopes higher than 30 vertical feet to control surface drainage and debris

- Required Not required
- If terraces are required, the following must be checked:
- Minimum width of 6'
 - Where more than two terraces are required, one terrace, at approximately mid-height, is at least 12' wide
 - Swales or ditches are provided on terraces and meet the following requirements:
 - 5% minimum gradient.
 - Paved with a minimum of 3" thick concrete.
 - Minimum of 12" deep.
 - Minimum of 5' wide.

Interceptor drains are required along the top of cut slopes receiving drainage from a tributary wider than 40' measured horizontally.

- Required Not required
- If interceptor drains are required, they must meet the following requirements:
- Minimum of 1' deep.
 - Minimum of 3' wide.
 - Have a slope no less than 2%.
 - Paved with a minimum 3" thick concrete.

Other Grading Requirements

- Grading Plan must match plan submitted in Preliminary Plan approval.
- No grading off of property without written consent from adjacent property owner.
- Roads match close to existing grade and are not filling in excess of one foot as measured at centerline.
- No cut and fill areas with a change in grade in excess of four feet within 10 feet of property line.

Erosion Control Plan

- Erosion Control Plan is in accordance with Storm Water Pollution Prevention Plan.

If any of the above requirements cannot be met, make note of the reasons in the margins.