TOWN OF HIDEOUT

ORDINANCE #2025-O-01

AN ORDINANCE AMENDING SECTIONS TO UPDATE ITEMS WITHIN THE LAND USE CODE IN TITLES 8, 9, AND 10

WHEREAS, Staff recognizes that many of the engineering standards currently codified are better incorporated in a separate engineering manual;

WHEREAS, many communities have moved their engineering and technical standards to an separate manual for ease of use for developers and the public;

WHEREAS, certain updates to application and submittal requirements will help with the application and review process;

WHEREAS, a public hearing was duly held before the Planning Commission on December 16, 2024 and before the Town Council on January 9, 2025;

WHEREAS, the Standard Specifications and Drawing Manual is concurrently being considered by resolution and being reviewed by both the Planning Commission and the Town Council as a Land Use Regulation pursuant to UCA 10-9a-502.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF HIDEOUT, UTAH, THAT:

SECTION I: Titles 8, 9 and 10 will be amended and the following sections removed from the Hideout Municipal Code and incorporated into a Standard Specifications and Drawing Manual as shown in Exhibit A attached to this Ordinance.

SECTION II: Section 9.01.050 is hereby adopted:

9.01.050 ADOPTING HIDEOUT TOWN STANDARD SPECIFICATIONS AND DRAWING

The Hideout Town Standard Specifications and Drawing Manual, as amended, adopted by the Town Council by Resolution, is the Standards, Specification and Drawings required in the Town of Hideout.

SECTION III: Effective Date. This Ordinance shall take effect upon publication.

PASSED AND ADOPTED by the Town Council of Hideout, Utah, this 9th day of January, in the year 2025.

TOWN OF HIDEOUT

Phil Rubin, Mayor

ATTEST:

Alicia Fairbourne, Recorder for the Town of Hideout

TOWN OF HIDEOUT CORPORATE Seal WASATCH COUNTY, UTAH

Exhibit A

8.02.100 PATCHING REQUIREMENTS

Patching requirements shall meet the following standards:

1. Cuts Parallel to Street: For cuts parallel to the street, the patch required is the lane width by thirty feet (30') minimum or ten feet (10') beyond the cut at each end, whichever is larger.
2. Cuts Perpendicular to Street: For cuts perpendicular to the street or diagonal, the patch required is the lane width by twelve feet (12') minimum or five feet (5') beyond the cut on each side, whichever is larger.

9.01.010 ADOPTING AMERICAN PUBLIC WORKS ASSOCIATION (APWA) STANDARD PLANS AND SPECIFICATIONS

The most recent addition of the American Public Works Association ("APWA") Utah Chapter Manual of Standard Plans and Specifications for all public works construction (with the exception of water and sewer standards and specifications) including Utah Chapter APWA supplements and updates are hereby adopted.

9.01.020 ADOPTING JORDANELLE SPECIAL SERVICE DISTRICT (JSSD) STANDARD PLANS AND SPECIFICATIONS

The most recent adopted Jordanelle Special Service District ("JSSD") standard plans and specifications for all water and sewer public works construction are hereby adopted.

10.08.14.1 ROAD GRADE AND MINIMUM WIDTH

1. The minimum allowed grade for all roadways is one-half percent (0.5%).
2. The maximum allowed grade for all local roadways is 10% (and 8% for all collectors). Council may allow local roadway slopes of up to 12% for lengths not exceeding 500 feet. For roadways greater than 10%, the applicant shall demonstrate a technical infeasibility to construct the roadway at or below 10% standard.
3. Unless otherwise specifically provided for in this Code, the minimum width for all new roadways within the Town is 26 feet of pavement (exclusive of curb and gutter).

10.08.14.2 UTILITY LOCATIONS

Utilities in the road will be located as shown in typical sections in this chapter.

10.08.14.3 GENERAL ROAD DESIGN STANDARDS

Roads shall be designed at a minimum in accordance with AASHTO design criteria and per street cross sections shown in Section 10.08.14.5 of this Title. The roadway design standards shall be the same for publicly owned and all privately owned roadways. The standards shall be applicable to new developments in The Town of Hideout.

1. **Major Collector (75 Foot ROW)**
   To be used where the potential of traffic at build out is greater than 8000 AADT requiring two 12′ travel lanes, and 5′ asphalt shoulders for bike/emergency lanes. Drainage is to be controlled with a drainage swale or curb and gutter. In areas where the profile grade is steeper than 5% the drainage swale must be lined with an approved fabric or rip rap. There will be no private residential access allowed except for very specific exceptions for existing buildable lots bordering a 75′ town right of way in circumstances where the applicant has proven safety concerns can be adequately mitigated. These exceptions can only be approved by the Mayor and Town Engineer. There will be no on-street parking. A right-of-way of 18′ is established behind the back of the curb. This allows for the potential of two meandering five-foot (5′) walkways on each side of the road. The Town Council may approve a deviation from the standard section for this type of roadway for specific alignments.
2. **Minor Collector (66 Foot ROW)**
   To be used where the potential of traffic at build out is between 2000 and 8000 AADT. Roadway to have two 11′ driving lanes with 5′ asphalt shoulders for bike/emergency lanes. Drainage to be controlled with a drainage swale or curb and gutter. In areas where the profile grade is steeper than 5% the drainage swale must be lined with an approved fabric or rip rap. There will be no private resident access allowed except for very specific exceptions for existing properties bordering a 61′ town right-of-way. A right-of-way of 18′ is established behind the back of the curb. Right-of-way allows for two five-foot (5′) walkways on each side of the road. Exceptions to be approved by the Mayor or Town Engineer. There will be no on street parking.
3. **Neighborhood Road (51-Foot ROW)**
   This is the minimum allowed right-of-way and road standard designed for all non-collecting neighborhood roads throughout the Town of Hideout without specific Town Council exception. Potential traffic is less than 1000 AADT. Drainage to be controlled by either a drainage swale or curb and gutter. There are to be 10′ travel lanes and 3′ asphalt shoulders for bike/emergency lanes. A 10′ right-of-way shall be dedicated behind the back of the curb and gutter. Exceptions to be approved by the Mayor or Town Engineer. There will be no on-street parking except where asphalt exceeds 32′.
4. **Arterial Roadways (106 Foot ROW)**
   One Hundred and Six Foot (106′) width Roads shall be designed at a minimum in accordance with AASHTO design criteria and per street cross section between the property line and the drainage swale.: To be used where the potential of traffic at build out is greater than 8000 ADT requiring a minimum of 3 driving lanes (including the turn lane) and 5′ asphalt shoulders for bike/emergency lane. Drainage to be controlled with a drainage swale, no curb and gutter. In areas where the profile grade is steeper than 5% the drainage swale must be lined with an approved fabric or rip rap. There will be no private resident access allowed. There will be no on street parking allowed. Larger rights-of-way allow for two meandering ten-foot (10′) asphalt paths on each side of the road. 1. The town council may approve an alternate section for construction depending on location and site-specific needs.
5. **Mountain Road**
   This road standard is designed for connective road traffic through mountainous terrain. It is not to allow frontage for any residential use. Potential traffic is less

than 1000 AADT. Drainage to be controlled with a drainage swale, no curb and gutter. In areas where the profile grade is steeper than 5% the drainage swale must be lined with an approved fabric or rip rap. No driveway access is allowed. The Town may not plow an unpaved mountain road may not be plowed in the winter. Emergency services may not be available in areas accessed on Mountain Roads when there is snow on the road.

6. **Emergency access / fire road**
   Only to be used in legally non-conforming subdivisions or lots of record and must be expressly approved by the Town Engineer and the town council on a case by case basis where the applicant has proven and the Town Council finds health, safety, and welfare of the road and the public will not be negatively impacted. The Fire/ Emergency Road may not be used as a secondary access. A fire/emergency road must have controlled access on each end point to prevent ordinary daily traffic.
7. **Alley Way**
   In some circumstances, alleys can be used to enhance the pedestrian experience by removing driveways, garage openings, loading docks, garbage containers, utility services and other drive activities from the front of buildings. Alleys shall be used on a limited basis and will be private with public access and public utility easements. By utilizing alleys, some utilities, loading docks, dumpsters and other service needs are kept to the back of the buildings and away from the pedestrian amenities. Alleys are not intended as a tool to avoid having a public street or private pedestrian plaza that meets the standards of a public street at the front of the buildings. The use of alleys must be approved by the Town of Hideout Council, the Town Engineer, and also the Wasatch County Fire District.
   1. **Definition:** "Alley" means a public access privately maintained within a block primarily intended for service and access to abutting property by vehicles and not designed for general travel and only allowed when units have frontage on a road or pedestrian plaza built to the applicable Town standard.
   2. **General Conditions:** Alley or access may be permitted under the following conditions. If all conditions are not met, then the use of alleys is prohibited.
      1. Building access must be available from a public street or private street/plaza built to the public standard as well as the alley.
      2. Alleys or Lanes are built to specific standards.
   3. **Water and Sewer:** Water and sewer utilities shall be in the street unless approved by the Town Engineer. If underground wet utilities, sanitary sewer, waterlines, storm drains, etc. are installed in alleys, they shall be constructed prior to the surfacing of the alley and per Town of Hideout Standards.

      If utilities are constructed within the alley then connections for all underground utilities and sanitary sewers shall be laid prior to the asphalt or concrete to avert the necessity for disturbing the alley improvements, when service connections thereto are made.
   4. **Alleys:** Alleys constructed of concrete will be 20' wide with an inverted crown and a centerline drainage collection system. Alleys constructed of concrete shall have a minimum pavement section of 8 inches of PCC over 6 inches of base rock, placed over geotextile fabric, or approved per geotechnical recommendations and approved by the Mayor or the Town Engineer for H^2O loading. Asphalt construction may only be used with a concrete water way for drainage at the center of the alley. A minimum of 3"

of asphalt over 9" of road base will be required. In conditions where asphalt construction is used, concrete ribbon curbing will be required outside the 20' width of the asphalt section to protect the edge of the asphalt. Said curbing shall be 2' wide for a total drivable surface of 24'. If the natural soils have a CBR under 20, then a thicker section will be required as determined by the developer's geotechnical engineer, with approval of the Town Engineer. The applicant must show all private improvements and how they will impact the alley, including garages or other structures, stairs, vaults, fences, walls, driveways, parking lots, walkways, or other improvements. The applicant must indicate existing drainage patterns and show private drainage inlets, outlets, and pipes beyond the alley right-of-way that will be impacted by the alley construction.

    1. **Joint Pattern:** The PCC pavement shall be placed full width in one pour, with no longitudinal joints. The alley design shall include a transverse joint pattern, shown on the plans, so that the joints are spaced to create panel lengths that are 0.75 to 1.25 times the alley width. The joint pattern will be coordinated to intersect with utility features such as poles, manholes, and catch basins.
    2. **Alley Approaches:** The alley approaches shall be constructed as commercial driveways in all respects, except that the structural section will be increased to 10 inches, or shall match the alley pavement structure for which it provides access, or as approved per geotechnical recommendations by the Mayor or the Town Engineer for H-20 loading, whichever is greater. Alley approaches with a standard curb return shall not be used without approval of the Town Engineer.

5. **Alley Length:** Alleys shall be continuous from street to street wherever possible. If an alley is not through and longer than 150 feet, then a turnaround must be provided to accommodate a fire truck, or such additional standards as may be required by the fire code.
6. **Alley Parking:** No person shall park a vehicle within an "alley" except during the necessary and expeditious loading and unloading of merchandise. No parking signs are required at 100-foot intervals. The alley must remain open at all times.
7. **Alley Setbacks:** Alley garage setbacks in residential uses shall be 20 feet or greater as measured from the edge of the alley paving. Alley's leading to parking structures or to commercial/hospitality uses such as hotels or retail shall have a minimum setback of 4 feet as measured from the edge of the alley paving. The four-foot setback shall remain open and unobstructed. If an alley exceeds 150 feet and is adjacent to buildings exceeding 30 feet, then the alley must have 26 feet of hard surface for fire truck downriggers. Parking garage structures shall have a side yard setback of no less than 15 ft.
8. **Alley Snow Storage:** An additional area of 15% of the alley paved area must be set aside for snow storage. A snow storage plan exhibit must be submitted as part of the alley plan to show that the required amount of snow storage has been provided.

10.08.14.4 ROADWAY SECTION

1. **Road Section:** Prior to preliminary approval of a development, the developer must provide a geotechnical, and geological review performed by a licensed geotechnical engineer and professional geologist. The review must address onsite soil conditions and make recommendations for a typical road section for the project. The reviewer must take into consideration the amount of full build out traffic ADT's based on an approved traffic control plan. The town has minimum section requirements as shown below.
2. **Roadway Excavation:** For new road construction, the entire road platform, including cut and fill areas, must be cleared of all vegetation, topsoil, organic material, and soft clays. If the geotechnical engineer classifies the sub grade soils to be collapsible, further actions may be necessary to prepare the sub grade based on the geotechnical engineer's recommendation. The Town of Hideout engineer has the option to require additional sub grade preparation and section materials above and beyond the geotechnical review engineer's recommendation.

3. **Sub Grade:** Minimum Sub Grade preparation will meet the requirements of the table below:

AASHTO Soil Classification	Requirement
All A-1, A-2, A-3 and A-4 classifications	Native sub-grade shall be scarified to a minimum depth of 12 inches. Loosened material shall be moistened and compacted to at least 95% of maximum dry density based on ASTM D1557.
All A-5 to A-7 classifications	Over-excavate and replace 12 inches of depth with a soil classifying as AASHTO A-1 through A-4. New material shall be moistened and compacted to at least 95% of maximum dry density based on ASTM D1557.

4. **Road Base and Asphalt:** The values in the following table are minimum thicknesses based on the roadway classifications. A geotechnical analysis and pavement design report is necessary to qualify these minimums, or these values may be increased due to further investigation based on local conditions. The Town Engineer may also require additional thickness or cross section improvements in addition to these minimums:

Roadway Classification	Requirement

Major Collector	5” Hot Mix Asphalt, 10” State-spec Base Course.
Minor Collector	4” Hot Mix Asphalt, 9” State-spec Base Course.
Neighborhood Roads	3” Hot Mix Asphalt, 8” State-spec Base Course.

5. **Excavation Through an Existing Street:** This section covers any trench excavation through an existing road and is anticipated to be used mainly to install utilities across existing roads. If possible, the preferred method for installing utilities under existing paved roads is to have them bored.
    1. Any excavation work in a town road (including the right of way) requires a permit.
    2. A traffic control plan meeting the MUTCD guidelines is required and must be approved by the Town Engineer. Minimal traffic impact including full road width or lane closures is required on existing roads.
    3. Material removed by the excavation is not to be used as backfill for any portion of the trench under the road paved section unless it meets an A-1 granular requirement.
    4. Pipe bedding to conform to the specific utility companies' requirement, including the dry utility companies (communication, electric, and gas), and Town standards for water sewer and storm drain piping.
    5. The remaining trench to be filled with select A-1-A granular product up to the existing road section.
    6. The top of the trench will have a minimum of 4” of asphalt placed in 2 lifts over road base to match the existing section or 8” minimum. Trench work shall be scheduled so that the trench can be completed including asphalt within a minimum of 2 days. Trenches left unpaved for longer than 2 days require specific approval in writing from the Town Engineer.
    7. Any work within an existing road requires inspection from the town to be scheduled by the contractor completing the work.
6. **Roadway Design Tables:**

Roadway Functional Classification								
	Arterial	Major Collector	Major Local	Major Local with Swale	Agricultural Seasonal Road	Fire Emergency	Mountain Road	Shared Driveway
ROW Width	106'	75'	66'	60'	60'	60'	60'	60'
Average Daily Trips	> 8000	> 8000	8,000-2,001	2,000-0	< 500	Emergency Only	< 200	< 200
Single Family Units	< 800	< 800	< 500	< 200	150-0	0	Minimal	1-3
Pavement Width	46'	44'	37'	30'	24'	16'	24	20
Side cut/fill slopes	3:1 up to 5 feet high and 2:1 above 5 feet					2:1	2:1	2:1
Horizontal Design Elements								
	Arterial	Major Collector	Major Local	Major Local with Swale	Agricultural Seasonal Road	Fire Emergency	Mountain Road	Shared Driveway
Minimum mid block centerline curve	Varies with V and superelevation				100'	60'	75'	60'
Minimum tangent distance between reverse centerline curves	Varies with V and superelevation				50'	40'	50'	40'
Maximum cul-de-sac length[3]	Not Allowed				The lesser of 1,300' or 30 dwelling units			
Cul-de-sac travelway turnaround diameter	Not Allowed				80'	80'	80'	80'
Maximum superelevation	6%	6%	6%	6%	N/A			
Vertical Design Elements								
	Arterial	Major Collector	Major Local	Major Local with Swale	Agricultural Seasonal Road	Fire Emergency	Mountain Road	Shared Driveway
Minimum crest vertical curve K value[5]	Varies with speed limit				19	19	19	19
Minimum sag vertical curve K value[5]	Varies with speed limit				37	37	37	37
Minimum length of vertical curve	Per traffic engineer	3*V	120'	80'	60'	50'	60'	60'
Minimum centerline grade[4]	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Maximum grade in cul-de-	Not Allowed				5%	5%	5%	5%
Maximum centerline grade across designated	4%	4%	4%	5%	5%	5%	5%	5%
Maximum grade break without vertical curve	0.50%	0.50%	0.50%	1%	2%	2%	2%	2%

Intersections								
	Arterial	Major Collector	Major Local	Major Local with Swale	Agricultural Seasonal Road	Fire Emergency	Mountain Road	Shared Driveway
Minimum angle of intersection	80°	80°	70°	60°	60°	50°	50°	50°
Minimum offset between intersection	Study required	Study required	150'	125'	125'	125'	125'	125'
Maximum centerline offset	0'	5'	5'	5'	5'	5'	5'	5'
Maximum centerline grade across intersections[6]	4%	4%	4%	5%	5%	5%	5%	5%
Minimum corner radius (edge of travelway)	30'	30'	30'	25'	25'	25'	25'	25'
Pavement Component Minimum Thickness								
	Arterial	Major Collector	Major Local	Major Local with Swale	Agricultural Seasonal Road	Fire Emergency	Mountain Road	Shared Driveway
Asphaltic Concrete	Per geotechnical report, 4" minimum			3"	3"	3"	3"	3"
Road Base	8" minimum			8"	8"	8"	8"	8"
Subbase	Per geotechnical report							

Notes:

1. Roads shall be designed at a minimum in accordance with AASHTO design criteria.

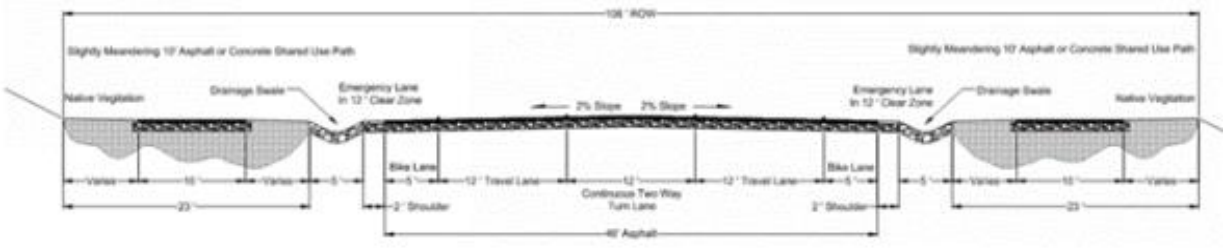
2. See Section 10.08.16 of this chapter for sidewalk requirements.
3. The length of a cul-de-sac is measured along the centerline from the intersection to the center of the turnaround.
4. Physical terrain may require exceptions to the maximum grade. See section 10.08.10 for further discussion.
5. Design speed for vertical curves shall be 5 miles per hour greater than the anticipated speed limit.
6. Grade must extend at least 100 feet beyond the edge of the traveled way of the outside lane of the intersecting street.
7. A geotechnical report including pavement design shall be submitted. The thickness of 1 or more of the pavement components shall be increased as needed to achieve the required strength as specified in the geotechnical report approved by the Town Engineer.
8. The primary street of an intersection shall not exceed the maximum centerline grades as allowed for each of the roadway functional classifications. Stop-controlled secondary intersecting grades must not exceed the reduced approach values as given in this table. The intersection centerline approach grades of the secondary or intersecting street must exceed at least 100 feet beyond the edge of the paved traveled way of the outside lane of the primary through street before exceeding these values.

10.08.14.5 STANDARD CROSS SECTIONS

1. All disturbed surfaces shall be covered with 6 inches of topsoil and seeded.
2. Lane striping as per cross section including the required bike lane painting.
3. Shoulder will be constructed with compacted road base.
4. The subtle meandering shared use path will have 3 inches of asphalt over 9 inches of road base. Road will have a minimum of four inches (4") of asphalt.
5. Permanent erosion control mat* or minimum 6" thick rip rap required in drainage swale for road slopes greater than 5%. Permanent mats shall have ground cover of 74% or greater and a ultraviolet stabilization of 1,000 hours.

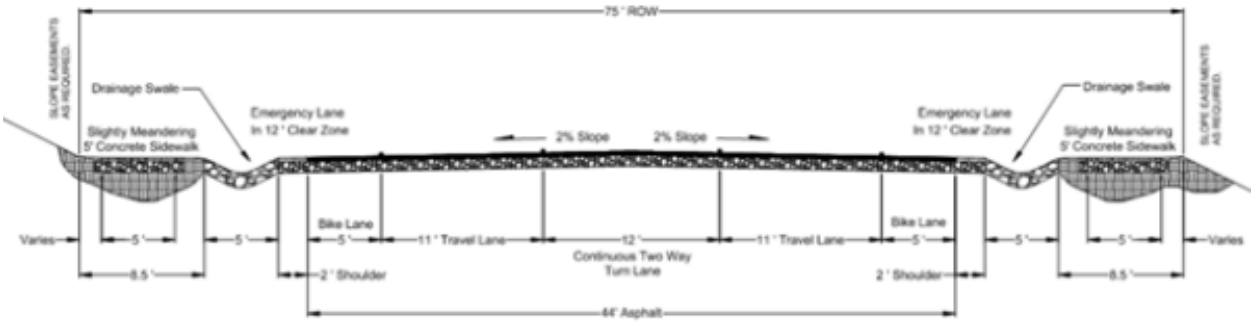
106' Arterial Cross Section

Figure 1



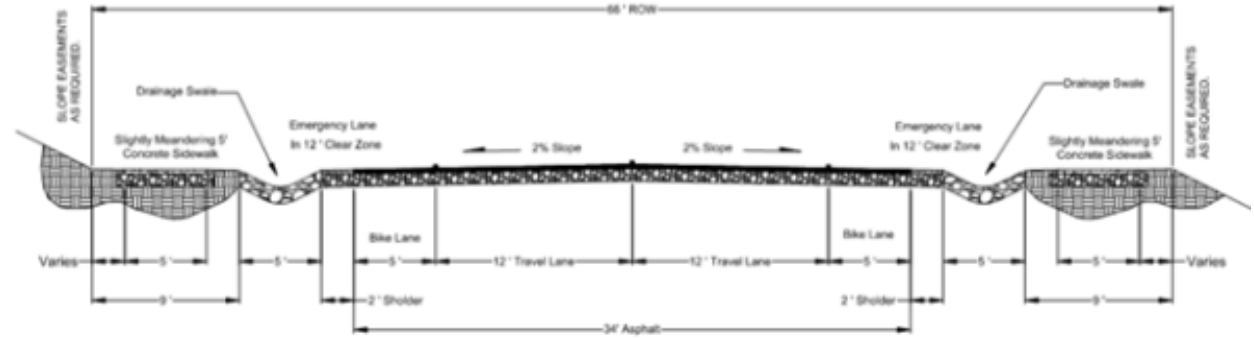
75' Major Collector Cross Section

Figure 2



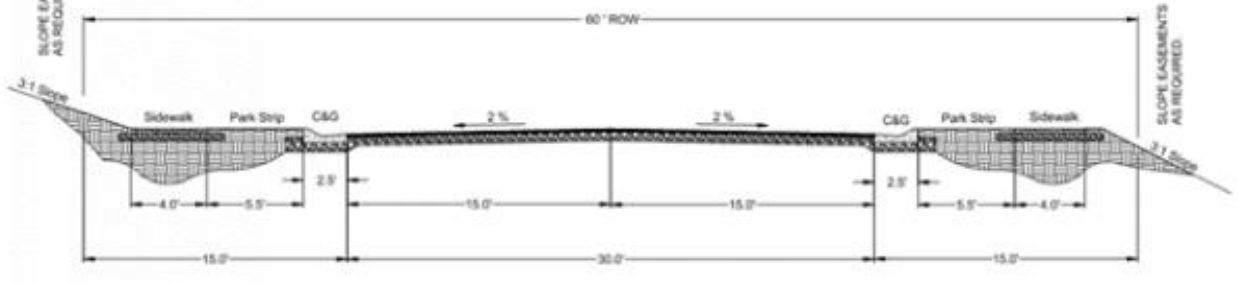
66' Minor Collector Cross Section

Figure 3



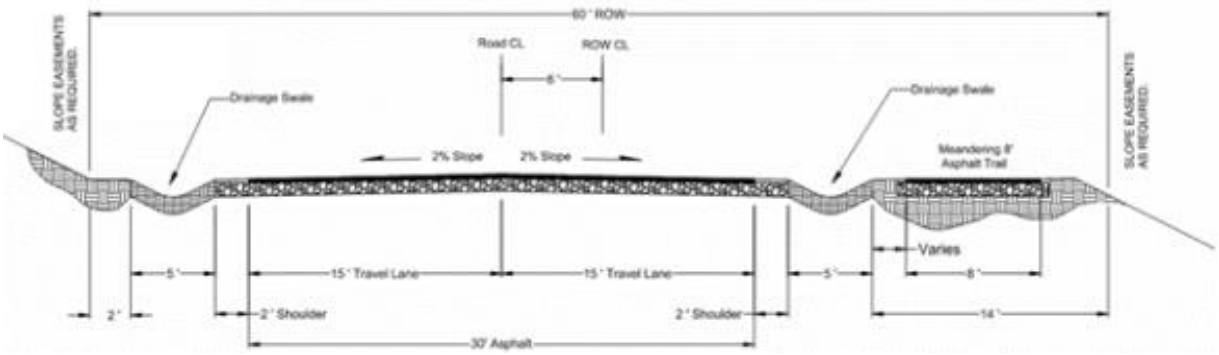
60' Major Local Cross Section

Figure 4



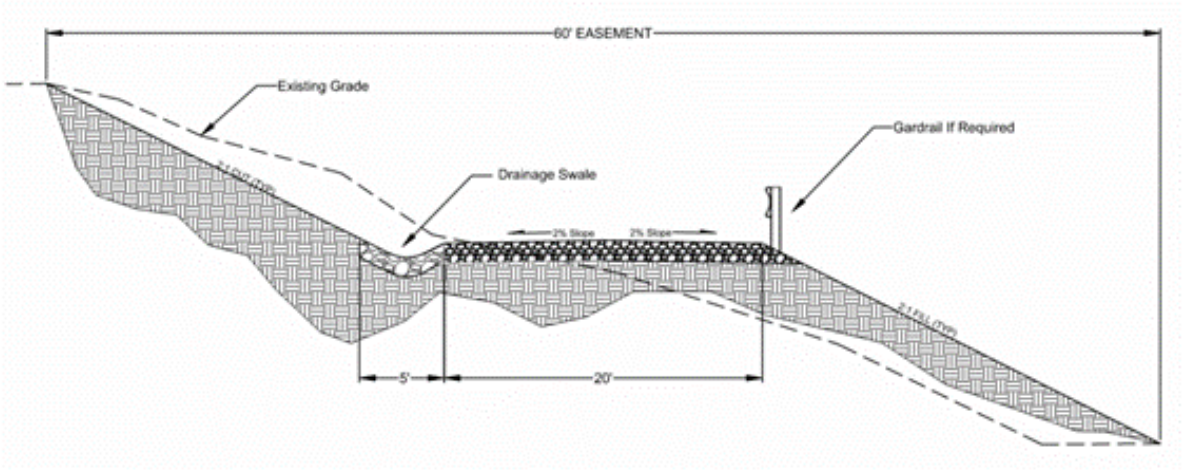
60' Major Local with Swales Cross Section

Figure 5



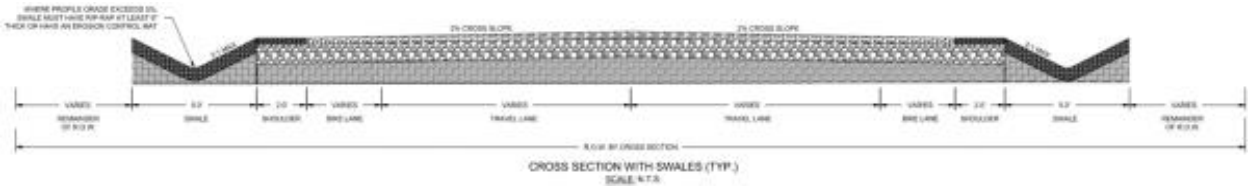
Fire / Emergency Road

Figure 7



Typical Cross Section with Swales

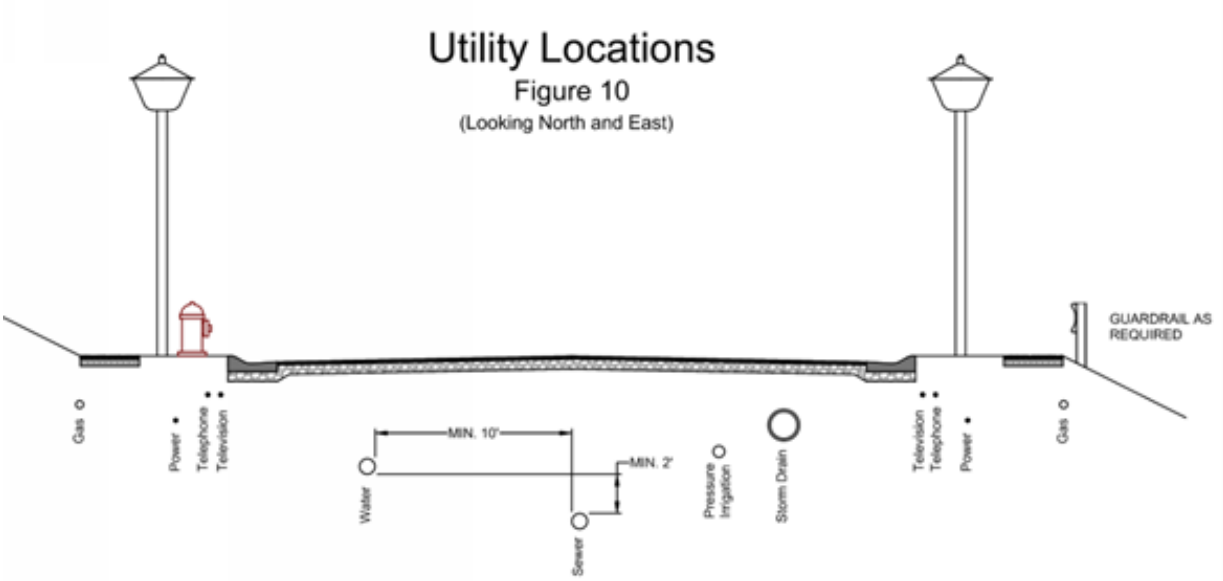
Figure 6



Permanent Erosion Control Mat Specifications:

Thickness	0.4 inches
Ground Cover Factor	74 percent
Tensile Strength	170 X 125 pound/foot
Tensile Elongation	50 percent maximum

Ultraviolet Stabilization 1,000 hrs	80 percent



The Town Council may adopt Town construction standards and specifications for roadways and cross sections. Where the provisions of this section impose different restrictions than those required in the Town construction standards and specifications, the provisions of the Town construction standards and specifications shall prevail.

1. **Roads.** Planned roads within a development shall always be kept open to the public, unless special approval is granted by the Town Council to allow a gated community.
2. **Cul-De-Sacs.** A publicly dedicated Cul-de-sac shall have a right-of way width of at least sixty (60) feet; shall have a length of not in excess of eight hundred (800) feet; shall be terminated by a right-of-way turnaround of not less than ninety-six (96) feet in diameter; and shall be identified as such by appropriate signage within twenty (20) feet of the entrance thereof, measured from the frontage road Property line.
3. **Easements.** Public Utility Easements of not less than ten (10) feet on rear lot lines, side lines, and front lines will be required to serve utility companies for poles, wire, conduits, storm or sanitary sewers, gas and water mains, and other public utilities. Easements of greater width may be required along Property lines where necessary for surface overflow or for the extension of sewer mains or similar utilities.
4. **Intersections.** Roads shall intersect each other as near as possible at right angles. Minor roads shall approach the arterial or collector roads at an angle of not less than eighty degrees for a distance of at least one hundred feet. Offsets across roads in road alignment between ten (10) feet and one hundred fifty (150) feet shall be prohibited.
5. **Curbs.** Curbs at all intersections shall be rounded with curves having a minimum radius of twenty-five (25) feet. Property lines at road intersections shall be rounded with a curve where necessary.
6. **Street Names.** New street names shall not duplicate those names already existing. A street obviously a continuation of another already in existence shall bear the same name. All road designations shall be approved by the Planning Commission and Wasatch County Information Systems Department. Street names shall be signed and said signing shall be discernable from the road.

7. **Dedications.** All roads shall be dedicated for public use. Private roads shall be permitted only as recommended by the Planning Commission and approved by the Town Council.
8. **Bridges and Culverts.** All bridges and culverts shall be constructed to support HS-20 / HL-93 loading requirements in accordance with DOT and ASHTO standards.
9. **Relation to Adjoining Road System.** The arrangement of roads in new Subdivisions shall make provision for the continuation of the existing roads in adjoining areas for their proper protection (where adjoining land is not subdivided) at the same or greater width (but in no case less than the required minimum width). Where the Planning Commission determines that it is necessary for the orderly development of the community and health and safety concerns to provide for road access to adjoining Property in order to provide an orderly development of a road system, proposed roads shall be extended by dedication to the boundary of such adjoining property.
10. **Cuts in Pavement.** No cuts shall be made in road pavement for at least five years after hard surfacing without approval by the Mayor with the advice of the Town Engineer, except in cases when public safety is at risk.

10.08.16 SIDEWALKS, CURBS, PLANTER STRIPS, AND GUTTERS

1. Curbs, and gutters shall be required on both sides of all new roads to be dedicated to the public.
2. Sidewalks, paved trails and planter strips may be required by the Planning Commission or Town Council; to be dedicated to the public.
3. Sidewalks, curbs, planter strips and gutters may be required by the Planning Commission and Town Council on existing roads bordering the new Subdivision lots.
4. Sidewalks shall be included within the dedicated non-pavement Right-of-Way of all roads unless an alternate location has been specifically approved by the Planning Commission.
5. Sidewalks shall be a minimum of sixty (60) inches wide and Americans with Disabilities Act (ADA) compliant for safe and easy passage for pedestrians.
6. Concrete curbs are required where sidewalks are required.

10.08.20 DRAINAGE AND STORM WATER FACILITIES

Storm drainage and erosion control planning submittal requirements are outlined in this chapter. Criteria can also be found in the "Wasatch County - A Guide For Erosion And Sediment Control" (1996).

1. Planning Submittal Requirements: Unless provided otherwise, the criteria and methods presented in the following references should be used in planning and design of the drainage system:
    1. "Urban Drainage Design Manual", hydraulic engineering circular no. 22, November 1996, federal highway administration, FHWA-SA-96-078, http://www.fhwa.dot.gov/bridge/hydpub.htm.

2. "Urban Storm Drainage Criteria Manual", June 2001, urban drainage and flood control district, http://www.udfcd.org/.
3. "Design And Construction Of Urban Stormwater Management Systems", ASCE manuals and reports of engineering practice no. 77, 1992, https://www.asce.org/bookstore/book.cfm?book=2800.

The drainage plan should provide for control of erosion at the source, noneroding conveyance facilities, and water quality/detention basins.

2. Control Of Erosion And Contaminants At The Source: The ability to control erosion and other pollutants at the source is the most important single mitigation factor. Every practical effort should be made to prevent erosion from occurring at the source. The objective should be to prevent erosion during construction and to reestablish vegetation as soon as possible after construction on all areas with exposed topsoil.

   Slope soil erosion, after revegetation, should be less than or equal to predevelopment rates and should be less than the topsoil development rate (generally assumed as 0.01 inch per year or 2 tons per acre per year).
3. Conveyance Facilities: The initial drainage system (i.e., curb and gutter, storm drains, culverts, ditches, realigned natural channels, etc.) should be designed to convey runoff from a minor storm event (10-year event, the storm event having a 10 percent chance of being equaled or exceeded in any given year) without nuisance flooding and without erosion. If tributary runoff flows (either peak or volume) are increased to a natural drainage, the drainage should be shown to be noneroding in a ten (10) year event.

   The drainage system should be capable of passing the storm runoff from a major storm (100-year event, the storm event having a 1 percent chance of being equaled or exceeded in any given year) without flooding buildings.
4. Water Quality/Detention Basin: The criteria for design of the water quality/detention basin should include both water quality mitigation and mitigation for downstream erosion and flooding effects. The effects of development (i.e., increased impervious area and decreased time of concentration) should be mitigated such as to prevent increased flooding of downstream properties (100-year design event) and to prevent increased erosion of downstream conveyance channels (10-year design event). The level of mitigation required is dependent upon the capacity of the downstream drainage system. A common practice is to provide for on site detention, reducing storm runoff peaks from the development to at or below historic (predevelopment) levels. If downstream conveyance capacities are severely limited, it may be necessary to reduce storm runoff peak flow rates from the developed property to much less than historic runoff flow rates to offset the impacts of the increased runoff volume.
   1. The basins should be designed to adequately capture and treat runoff from the water quality design storm. Wasatch County criteria ("A Guide For Erosion And Sediment Control", pages 11 and 18) require capturing and containing the runoff volume from a two (2) year, twenty-four (24) hour storm (minimum). The water quality capture volume should be discharged at a rate such as to allow a minimum residence time of twelve (12) hours (defined as the time from the centroid of the inflowing hydrograph to the centroid of the outflowing hydrograph). The maximum allowable discharge rate for the

water quality capture volume discharge orifice may be computed using the simplified equation:

Qwq = (WQCV/30) * C

Qwq	=	Maximum allowable water quality capture volume release rate (cfs)
WQCV	=	Water quality capture volume (acre-feet)
	=	2-year 24-hour runoff volume
C	=	Conversion from acre-feet/hour to cubic feet per second = 12.1

2.
3. The water quality pond should have sufficient additional storage below the lowest outlet to accommodate sediment accumulation. The minimum volume of provided sediment storage should be either computed from a slope erosion analysis for the three (3) year slope soil loss (revised universal soil loss equation reference: "Design Hydrology And Sedimentology For Small Catchments", C.T. Haan, B.J. Farfield, and J.C. Hayes, 1994, Academic Press, Inc., San Diego, California) or may be taken as equal to twenty percent (20%) of the water quality capture volume. If subsoils are such that water captured in the sediment storage area cannot infiltrate within a reasonable period of time (to avoid mosquitoes, etc.), then a subdrain system should be considered.
4. The analysis for designing the required detention volume to mitigate downstream flooding and erosion effects should be performed assuming that the pond is full to the water quality capture volume level prior to the start of the design storms (10-year and 100-year).
5. An emergency spillway (preferably open channel type) is required with a one hundred (100) year flood event minimum design capacity assuming that the primary outlets are plugged. The elevation of the top of the embankment should be a minimum of one foot (1') above the water surface elevation when the emergency spillway is conveying the maximum design or emergency flow. The design height of the embankment should be increased by roughly five percent (5%) to account for settlement.

5. Water Quality/Detention Basins Maintenance Requirements: Key components include nonplugging outlets design, maintenance access design, and pond side slope erosion protection design.
    1. Detention basin outlets should be designed to be nonplugging as much as possible. A possible option for the water quality capture volume discharge orifice is to provide an orifice (set with the orifice invert at the bottom of the water quality capture volume level) with a connected pipe inlet placed a minimum of six inches (6") below the water level at which water begins to discharge. Outlet pipes should be protected by inlet grates which are sized, spaced, and oriented such as to minimize plugging of the outlets.

2. Maintenance access to the ponds should be provided. Required access includes access with heavy equipment to the pond floor (generally 15 inches minimum width with 15 percent maximum slope) and all weather access should be provided to the pond outlet facilities.
3. Interior pond side slopes should preferably be four horizontal to one vertical (4:1) or flatter and should not be steeper than three horizontal to one vertical (3:1). Pond side slopes (both interior and exterior) should meet the same criteria for slope erosion control stated above (2 tons per acre per year maximum mean annual slope soil erosion rate). Riprap is not permitted unless approved by the Town Planner and only under special circumstances. Steep slopes that might otherwise necessitate riprap should be designed at a reduced slope, one that allows the basin to be landscaped appropriately and in coordination with the Town Planner.
4. Provisions for low maintenance landscaping and irrigation must be provided. Landscaping will be maintained by the homeowners' association.

6. Open Channels: Wherever possible open channels shall be preserved for all major drainages shown on the Final Drainage Control Plan. No building shall be located within 50 feet of a natural drainage. Culverting of these channels is not permitted.
7. Landscaping: A landscape plan must be included with all stormwater plans. This plan shall include flood tolerant species within the basin as well as the appropriate screening of the basin. Slopes should be gradual enough so that fencing is not needed around a basin and native landscape plant materials can be reintroduced after construction in coordination with the Town Planner.
8. Health and Safety: Upon recommendation of the Town Engineer or Town Planner, and when necessary to conserve or promote the health, safety, or welfare of the present and future population of the Town and necessary to the conserve or promote water drainage , the Town prohibit the Subdivision of any portion of the property which lies within a floodplain or any stream or drainage course, as identified in the most current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map. Except as approved by the Town Engineer, such areas should be preserved from any and all destruction or damage resulting from clearing, grading, or dumping of earth, waste material, etc.

10.08.22 WATER SYSTEM

1. The water distribution system shall deliver water at pressures meeting state requirements, as measured at the main line adjacent to each system connection. Pressure reducing valves shall be placed on the mains to regulate pressures in excess of 120 PSI. Pressure reducing values shall be installed on service laterals for residential neighborhoods as a back-up to main lines. At no time shall water pressure exceed 120 psi to each system connection. At no time shall services be connected to transmission lines.
2. The water system pumps, storage tanks, transmission and distribution mains, etc. must meet JSSD design standards.
3. The system shall be designed to provide the following fire flows and to meet adopted codes and Fire District standards:
    1. Residential Connections: 2,000 gpm for 2 hours
    2. Commercial Connections: 3,500 gpm for 3 hours

4. Fire hydrants are required along public ways or walks or drives which are to be snow-plowed. Fire hydrant spacing shall be in accordance with applicable codes, or a maximum of 500 feet.
5. All water design and construction shall comply with the latest JSSD design requirements.

10.08.24 SEWER SYSTEM

1. Sanitary Sewers shall be designed in accordance with all applicable State of Utah standards and adopted codes.
2. All sanitary sewer systems shall be designed to exclude all storm water runoff, or water from field drainage systems, foundation drains, underground parking structures, roofs, roads, and other paved areas.
3. Downspout connections, foundation and basement drains, sumps and storm drain connections shall be prohibited from discharging into the sanitary sewer system.
4. Grease traps or oil separators shall be sized for peak flows and average loading of grease/oil by an engineer and approved by the Town Engineer prior to placement. The grease traps or oil separators shall be placed to allow access for inspection and cleaning. This applies to commercial and institutional facilities, and any building or lot with the potential of introducing substances that would be detrimental to treatment facilities.
5. Sewer systems shall be designed to eliminate possible cross connections with culinary water system.
6. Design Period: The sewer system shall be designed to serve the estimated ultimate tributary area and shall be based on the best information available, including Master Plan Study, current zoning regulations and approved planning and zoning reports when available.
7. Wastewater Pumping Stations: Use of wastewater pumping stations will be avoided whenever possible. Pumping stations are subject to approval and review by the Town Engineer.