CIVIL IMPROVEMENTS
Submittal and Review Checklist

8/11/25 V15

City of Henderson
Development Services Center
www.cityofhenderson.com
dsconline.cityofhenderson.com
240 Water Street
PO Box 95050
Henderson, Nevada 89009-5050
(702) 267-3600

Thank you for taking the time to review this checklist before submittal. This checklist is provided for the convenience of our customers. Complete and accurate plan submittals help the plan review process. Attention to the completeness and accuracy of information at the beginning of the process generally leads to fewer delays and requests for corrections by City staff. Please use the checklist to ensure that your application and plans include all information necessary for a timely and accurate review of your project. This checklist is provided as a general guideline and, while comprehensive, it is not intended to be all-encompassing. Additional information may be required or requested during the plan review process.

Applicant's Responsibility

Applicants are responsible for submitting complete applications and plans. A pre-screening is performed and incomplete applications will result in plans being rejected for acceptance. Incomplete plans will be returned to the applicant during the review process. City service commitments do not apply to incomplete submittals.

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Part 1 Submittal Prerequisites

The following items must be completed before civil improvement plans can be accepted for processing:

- ❑ **Appropriate zoning is currently in place for the proposed use**
  Contact Community Development at (702) 267-1500 for more information.
- ❑ **Approved Design Review or Tentative Map** [or other entitlement, if applicable]
  Approved for this site.
- ❑ **Approved Traffic Study (Traffic Impact Analysis)**
  Approved for this site or have received an exemption letter or email waiver from Traffic Engineering. See contact info on last page of this checklist.
- ❑ **Approved Technical Drainage Study (Hydrology Study)**
  Approved for this site or have received an exemption letter or email waiver from the Land Development and Stormwater Section. See contact info on last page of this checklist.
- ❑ **Approved Water Network Analysis (Hydraulic Analysis)**
  Approved for this site or have received an exemption letter or email waiver from the Department of Utility Services. See contact info on last page of this checklist.
- ❑ **Compliance with Planning Commission and/or City Council actions**
  Related to this parcel and the associated conditions of approval.
- ❑ **Park Development Plan / Park Agreement** [if applicable]
  Must be finalized prior to the submittal of civil plans or as determined by the development agreement and/or entitlements. If conditioned to provide neighborhood park amenities, the following park-related approvals are required before a permit can be issued: Parks & Recreation Department, Parks and Recreation Board Committee, Property Management, Nevada Division of Transportation {NDOT}, and Easement Holders {if required}.

Part 2 Applicable Codes

The project must meet the requirements of the City's adopted codes, ordinances, and regulations:

- **American Association of State Highway and Transportation Officials: A Policy on Geometric Design of Highways and Streets, Roadside Design Guide, Guide for the Development of Bicycle Facilities, Guide for the Planning, Design, and Operation of Pedestrian Facilities, etc.**
- **Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)**
- **Accessibility Requirements**: Chapter 11 and related appendix of the currently adopted International Building Code (IBC). Standards shall be in accordance with ANSI 117.1, 2009.
- **Clark County Area Uniform Standard Drawings & Specifications (CCAUSD)**
- **The State of Nevada 2020 Blue Book**
- **International Building Code (IBC), International Fire Code (IFC) and NFPA Standards per City of Henderson Amendments** (https://www.cityofhenderson.com/government/departments/building-and-fire-safety/building-codes)
- **Clark County Uniform Regulations for the Control of Drainage**
- **Clark County Regional Flood Control District Hydrologic Criteria & Drainage Design Manual**
- **Federal Highway Administration Roundabout Guidelines (NCHRP Report 672)**
- **Manual on Uniform Traffic Control Devices (MUTCD)**
- **City of Henderson Master Transportation Plan (MTP)**
- **City of Henderson Roundabout Design Checklist**
- **Nevada Department of Transportation Standard Drawings & Specifications**
- **North American Vertical Datum of 1998 (NAVD88)**
- **2004 City of Henderson Benchmark Book**
- **Uniform Design and Construction Standards for Potable Water Systems including the City of Henderson Addendum (UDACS), latest version**
- **Design and Construction Standards for Wastewater Collection Systems including the City of Henderson Addendum (DCSWCS), latest version**
- **Henderson Utility Guidelines (HUGs)**
- **Nevada Board of Professional Engineers & Land Surveyors Best Practices Guide for Quality Plan Submittals**
- **City of Henderson Municipal Code (HMC)**
- **City of Henderson Development Code (Title 19)**
- **City of Henderson Parks & Recreation Requirements** [if applicable]
  - **Parks and Recreation Department Standardized Design Guidelines**
  - **Lake Mead Landscape Improvement Project Design Guidelines**
  - **Boulder Highway Beautification Design Guidelines**
  - **St Rose Trail Design Guidelines**

Part 3 Submittal Package

Provide the following information and documents at the time you submit your civil improvement plans. Submittals are made online at https://dsconline.cityofhenderson.com/

- ❑ **Completed Civil Improvement and Revision Submittal Form**
  Application must be filled out completely and signed.
- ❑ **Completed Bond & Inspection Fee Form**
  The submittal fee must be paid at the time of submittal and before plans will be accepted for review.
- ❑ **Civil Improvement Plans in PDF format and digitally signed by all stamping professionals.**
  All sheets must contain the seal, signature, and stamp date of a civil engineer who is registered in the State of Nevada, in accordance with Nevada Revised Statutes and NAC 625. Sheets are to be formatted to 24" x 36" (Arch D). PDF must be flattened BEFORE digital signatures are applied.
- ❑ **Horizontal Control Sheet stamped and digitally signed by a PLS.**
  Horizontal Control Plans are required for ALL Civil Improvement Plan submittals and must be stamped by a Nevada Licensed Professional Land Surveyor (PLS) per NAC 625. Horizontal Control Sheet must be included in the sheet index and combined into the civil improvement plans PDF identified above.
- ❑ **Traffic Study Acceptance Letter & Permit Number**
  If the Traffic Study was waived, an exemption letter or email from the City Traffic Engineer or designee must be included with your submittal.
- ❑ **Technical Drainage Study Approval Letter & Permit Number**
  If the Drainage Study was waived, an exemption letter or email from the Land Development / Stormwater section must be included with your submittal.
- ❑ **Soils Report(s) [Geotechnical Report]**
  The report must be signed, dated, sealed and digitally signed by a civil engineer, registered in the State of Nevada, in accordance with Nevada Revised Statutes and NAC 625. The report must be dated within one year of the time of application, or an update letter from the firm/engineer who prepared the report is required before the plans will be accepted for review.
- ❑ **Water Network Analysis Acceptance Letter & Permit Number**
  If the Water Network Analysis was waived, an exemption letter or email from the Department of Utility Services must be included with your submittal.
- ❑ **Conditions of Approval (NOFA – "Notice of Final Action")**
  Submit all Planning Commission and/or City Council action related to this parcel and the associated conditions of development, including all applicable waivers.
- ❑ **Grading Permit must be applied for concurrent with Civil Submittal**
  Provide a grading permit submittal package to the Building Division immediately following the civil improvement plan submittal to Public Works. The grading permit must be issued prior to final civil approval.

Additional Submittal Requirements (when applicable)

- ❑ **Phased Construction Submittals (i.e., plans submitted as a Phase 1, with a Phase 2, 3, 4, etc. intended to follow later) must include:**
  a. *A phasing plan describing fire apparatus, access roads, and fire hydrant locations relevant to each phase.*
  b. *A Master Street Light and Traffic Control (signage) Plan, as well as pedestrian access routes, encompassing all phases and/or units.*
- ❑ **Preliminary Letter of Acknowledgement from adjacent property owners** [if applicable]
  Required at time of submittal if any construction activity (i.e., grading, wall construction, utility connection, etc.) is proposed on adjacent property. A final notarized Letter of Authorization (or recorded easement for utility connections) must be provided prior to issuance of a grading permit or final civil approval. The letter must include a detailed description of the proposed construction activity or improvements, the project name, civil permit number, and the Assessor's Parcel Number and Ownership Information of the adjacent parcel where the work is proposed. An exhibit showing the location and scope of the proposed work must be included. ***Please note:*** *All water and sewer connections on, or extensions across, an adjacent parcel will require a recorded Public or Private Utility Easement in lieu of a Letter of Authorization prior to final civil approval.*
- ❑ **Utility Services required through adjacent developments**
  Plans will not be reviewed unless all necessary off-site infrastructure to provide water and sewer service has been depicted on plans. Plans will not be approved unless said infrastructure is in place or bonded for this project.
- ❑ **Turnkey Infrastructure Bond and Fee Estimate, with supporting docs** [if applicable]
  In addition to the standard bond required for all public infrastructure (streets, water, sewer, storm drain, etc.), a bond for the full construction cost at prevailing wages will be required for all turnkey parks, trails, and utility infrastructure (reservoirs, pump stations, etc.) being constructed and turned over to the City of Henderson. Improvements included in an LID are excluded from additional bonding.
- ❑ **Landscape (Planting) and Irrigation Plans** [when required]
  Landscape and Irrigation plans are required to be included in the civil plans for all public, or future public, projects (i.e., Public or Turnkey Parks, Public or Turnkey Trails, Turnkey Infrastructure like Pump Stations and Reservoirs, City Facilities or Buildings, etc.). Landscape and Irrigation plans are NOT required to be included in the civil plans package for residential, commercial, industrial, or multi-family projects.

Part 4 Civil Review and Design Guidelines

This list is not intended to be all-inclusive of every detail required on a set of civil improvement plans. Rather, it is provided to give an overview of the basic plan contents needed for the review of plan sets. See Part 7 of this checklist for final CAD file requirements that should be considered early in your design preparation.

Review Method

❑ **Electronic Plan Review Formatting**
All permit submittals in the City of Henderson will be reviewed utilizing electronic plan review software. Whenever possible, steps should be taken to utilize the tools available to format PDFs in such a way as to simplify navigation through the plan set. PDFs should be flattened to remove selectable text and objects. Pages should be bookmarked in the following format: "SHEET NAME – SHEET DESCRIPTION". Example: "HC1 – HORIZONTAL CONTROL PLAN 1". If possible, it is desirable for the sheet index, cross sections, and details to be hyperlinked.

General Formatting

❑ **Approval Block**
A blank 6" x 2" block is required to be provided in the same location (X:Y) on every sheet of the civil plans. The City's electronic approval stamp will be batch applied in these blocks at project approval.

❑ **Sheet Formatting and Title Block**
Sheets shall be formatted to 24" x 36" (Arch D). Each sheet shall contain a title block placed vertically along the right-hand edge containing the following: Numerical page number, abbreviation or sheet name (CVR, GR-1, C-01, etc.), sheet title (grading plan, traffic plan, etc.), project name (should match, or include, name used on entitlements), name of the engineering firm, a revision schedule, the licensed professional's stamp and stamp date, and space for the 14-digit City of Henderson permit number (PCVLXXXXXXXXXX) towards the bottom.

❑ **Key Maps**
All plans split across two or more pages shall provide a key map on each sheet identifying sheet improvements relative to overall project development. The applicable section of the key map shall be shaded and labeled to match the current sheet.

❑ **Text**
All text within the civil improvement plans, including but not limited to notes, callouts, construction notes, section details, etc. should be oriented to be read from the bottom of the page or the right-hand side of the page.

❑ **Color-Coded Undergrounds**
The water, sewer, reuse water, and storm drain linework on all new civil improvement plan submittals shall be color-coded. This applies to both existing and proposed infrastructure. Lines and appurtenance symbols should be color-coded as indicated below. Associated notes may be in black for legibility.

- Water – Blue (AutoCAD Color Index 5 or equivalent)
- Sewer – Medium Green (AutoCAD Color Index 62 or equivalent)
- Reuse Water – Dark Purple (AutoCAD Color Index 194 or equivalent)
- Storm Drain – Orange (AutoCAD Color Index 30 or equivalent)

❑ **Scale and North Arrow**
All design sheets require a north arrow and a graphic drawing scale. Other than Master and Overall sheets, scale shall not exceed 1" = 40' and minimum text size and/or lettering shall be 0.08".

❑ **Advisory Blocks**
All sheets shall contain "Call Before You Dig" and "Call Before You Crane – Overhead Power Line Safety" blocks.

Cover Sheet

❑ **Legal Description of the Subject Property and Project Information**
Include all parcel number(s), acreage [gross and net], and list all buildings with building information.

❑ **Cover Sheet Notes**
Provide notes 26-30 of the Standard General Notes on the cover sheet (these are also required to be included in the full list of standard general notes on the notes sheet).

❑ **Sheet Index**
Identify and list all sheets by page number, abbreviation or alias (CVR, GR-1, C-01, etc.) and title. Index may be moved to the notes sheet if space is limited with a note on the cover stating what page the index is located on.

❑ **Vicinity Map**
Provide a vicinity map showing the location of the project and the nearest major cross streets on the cover sheet.

❑ **Contact Information**
Provide the company name, contact person, address, and telephone number of the engineer, property owner, and developer.

❑ **Benchmark and Basis of Bearing**
Provide the City of Henderson Benchmark number, description, and the elevation in meters and feet from the City of Henderson Survey Benchmark and Interactive Map located on the Survey/Right-of-Way and Property Management website here. Provide the basis of bearing for the subject property.

❑ **Soils Report Information**
General Information: Include the project and/or report numbers and dates of reports together with the names, addresses, and phone numbers of the firms or individuals who prepared the report on the cover sheet and the grading sheets. If the report is dated more than 1 year before the time of the civil submittal, an update letter is required before the submittal will be accepted for review. If the report or latest update is more than 18 months old when the plans reach final review, an update may be required prior to final approval of the civil plans.

Recommendations: Report recommendations shall be included in grading plans, sections, and specifications.

❑ **Conformance Blocks (Traffic, Water Network, Drainage, Geotechnical, Entitlements)**
Provide and complete the following blocks on the cover sheet. These blocks must be signed by the engineer with responsible charge of the work that is stamping the civil plans.

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE **TRAFFIC IMPACT STUDY** APPROVAL LETTER ON FILE WITH THE CITY OF HENDERSON

_____
TRAFFIC IMPACT STUDY NUMBER (AND UPDATES)

_____ _____
PRINTED NAME SIGNATURE

_____ _____
DATE P.E. NUMBER

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE **WATER NETWORK ANALYSIS** APPROVAL LETTER ON FILE WITH THE CITY OF HENDERSON

_____
WATER NETWORK ANALYSIS NUMBER

_____ _____
PRINTED NAME SIGNATURE

_____ _____
DATE P.E. NUMBER

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE **TECHNICAL DRAINAGE STUDY** APPROVAL LETTER ON FILE WITH THE CITY OF HENDERSON

_____
TECHNICAL DRAINAGE STUDY NUMBER (AND UPDATES)

_____ _____
PRINTED NAME SIGNATURE

_____ _____
DATE P.E. NUMBER

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO THE REQUIREMENTS OF THE **GEOTECHNICAL (SOILS) REPORT** ON FILE WITH THE CITY OF HENDERSON

_____
SOILS REPORT / PROJECT NUMBER

_____ _____
PRINTED NAME SIGNATURE

_____ _____
DATE P.E. NUMBER

THIS SET OF IMPROVEMENT PLANS IS CERTIFIED TO CONFORM TO ALL CONDITIONS AND REQUIREMENTS OF THE **APPROVED ENTITLEMENT(S)** ON FILE WITH THE CITY OF HENDERSON

_____
NUMBER OF APPROVED TENTATIVE MAP, DESIGN REVIEW, OR OTHER APPLICABLE ENTITLEMENTS

_____ _____
PRINTED NAME SIGNATURE

_____ _____
DATE P.E. NUMBER

❑ **Cover Sheet Signatories**
Provide an approval box with the following note and internal City signature lines:

City approval of the improvement plans is granted for two (2) years. A one (1) year extension may be granted by submitting an Improvement Agreement Extension Amendment to the City of Henderson Department of Public Works if work is not completed within two (2) years of the original approval date.

a. City Engineer – City of Henderson
b. Building Official Representative – City of Henderson
c. Utility Services – City of Henderson
d. Fire Department – City of Henderson
e. City Traffic Engineer – City of Henderson
f. Park Planning – City of Henderson [only required when a public park or trail component is included]

❑ **Public Utility Review**
All projects must comply with the requirements of the local public utilities. Contact the companies listed below and provide any notes or approval lines on the civil cover sheet as indicated below:

Southwest Gas (Approval Required)
Southwest Gas requires a review of the civil plans and an approval line on the cover sheet. To request information on how to submit your plans to Southwest Gas, please email snv-engineering@swgas.com and include a copy of your plans. Southwest Gas will issue an approval letter when they have approved your plans. Please upload that letter to the DSC Online Portal and place the approval number, reviewer name, and approval date on the cover sheet of your civil plans once you have it. This is required prior to final approval.

Southwest Gas – Southern Nevada Division – Engineering Department contact info: 702-365-2099

CenturyLink (Approval Not Required – See Note)
CenturyLink does not require a review of the civil plans or an approval line on the cover sheet. Please include this note on the cover sheet of the civil plans:

"It is the responsibility of the contractor to locate and protect all existing utilities. If any existing CenturyLink facilities conflict with the proposed improvements and must be removed or relocated, please contact CenturyLink via ctl-nv-engineering@lumen.com and you will receive additional instruction on how to proceed."

NV Energy – Distribution (Approval Not Required)
NV Energy – Distribution does not require a review of the civil plans, and no notes or approval lines are required.

See the information below to submit new service requests, conflicts, relocations, etc.

NV Energy – New Construction contact info:
702-402-8400 Extension 3
https://www.nvenergy.com/business/building-and-new-construction
https://ncp.nvenergy.com/

NV Energy – Transmission (Approval Required, when applicable)
All projects with an NV Energy Transmission Easement adjacent to or within the development area must submit to the NV Energy – Transmission division for review and approval of the civil plans. When applicable (when a transmission easement or transmission facilities are present), an approval line is required on the cover sheet and must be signed prior to final review.

rightofway@nvenergy.com
https://ncp.nvenergy.com/

Cox Communications (Approval Not Required – See Note)
Cox Communications does not require a review of the civil plans or an approval line on the cover sheet. Please include this note on the cover sheet of the civil plans:

"If any existing Cox facilities conflict with your proposed improvements and must either be removed or relocated, please send plans to Construction Support (CCI-Central Region) via ConstructionSupport@cox.com, and they will be routed to the appropriate teams. All removal / relocation requests are to be funded by the requestor."

SNWA / LVVWD / CCWRD / NDOT (Approval Required, when applicable)
All projects adjacent to, or involving, existing easements or infrastructure from other local utility agencies must submit to and follow those agencies requirements. Include approval information on the plans as directed by the applicable agency.

General Notes Sheet

- ❑ A comprehensive notes page shall follow the Cover Sheet and include the following [when applicable]. Required notes can be found at:
  https://www.cityofhenderson.com/government/departments/public-works/forms
  https://www.cityofhenderson.com/government/departments/development-services-center/submittal-checklists
  https://www.cityofhenderson.com/government/departments/development-services-center/applications-forms
  https://www.cityofhenderson.com/government/departments/utility-services/development/utility-services-codes-standards-guidelines
  https://www.cityofhenderson.com/government/departments/building-and-fire-safety/divisions/fire-safety-engineering/fire-safety-checklists-notes

- ❑ **City of Henderson Standard General Notes**
- ❑ **City of Henderson Standard Water and Standard Sewer Notes** [when new water/sewer is proposed]
- ❑ **Fire Department General Notes**
- ❑ **Flood Zone Notes** [when applicable]
  Provide the FIRM map number, flood zone, and effective date for the site.
- ❑ **Legend, Abbreviations, and Symbols**
  Symbols, abbreviations, and line types shall be per Clark County Area Standard Drawings where applicable. A master legend and an abbreviations list are required on the plans.
- ❑ **Comprehensive Quantity List**
  A list of all public (off-site) and private (on-site) project quantities as needed for bonding and fee calculation purposes. If project includes NDOT right-of-way or a LID, these quantities must be listed separately. Use separate columns for Public, Private, NDOT & LID quantities. Quantity units must match the City Bond and Fee Estimate and should be presented in the same order for ease of comparison and review.
- ❑ **Special Notes necessary to complete the review**
- ❑ **Storm Water Pollution Standard Plan Notes**
- ❑ **Traffic Notes**
- ❑ **Streetlight Notes** [required when new streetlights are proposed, a service pedestal is proposed or is being modified, or telecom equipment is proposed to be installed on city streetlights]
- ❑ **Traffic Signal Notes** [required when new signal proposed or existing signal modified]

Grading Plans

- ❑ **General Information**
  a. All at or above grade utilities and appurtenances (streetlights, manholes, pullboxes, fire hydrants, etc.) must be shown, but not detailed, on the grading plans (see also Elevations & Contours below).
  b. All construction information for surface improvements (curb, gutter, sidewalks or pathways, ramps, paving, etc.) and storm drain improvements shall be shown on the Grading Plans.
  c. Property limits and accurate contours of existing ground and details of terrain and area drainage.
  d. Address the possible impacts on adjoining properties and mitigating measures to be undertaken.
  e. Limiting dimensions, elevations, or finish contours to be achieved by the grading, proposed drainage facilities, and related construction.
  f. Flood Zone Boundary [if applicable]
     a. Provide sections for concrete slab-on-grade pavements and associated design calculations.
     b. Provide collar, turndown and/or thickened edge sections at extents.
  g. Identify and dimension all easements [existing or proposed] and who will maintain them.
  h. Show all proposed sawcut lines and shade or lightly hatch all proposed asphalt in the right-of-way.
  i. Show square footage of all proposed buildings, pads, trash enclosures, and other structures (applies to commercial, industrial, and multifamily projects).
  j. ADA Passing Zones [if applicable – See Traffic Engineering section]
  k. Show Sight Visibility Zones [if applicable – See Traffic Engineering section].
- ❑ **Soils Report Information**

  General Information: Include the project and/or report numbers and dates of reports together with the names, addresses, and phone numbers of the firms or individuals who prepared the report on the cover sheet and the grading sheets.

  If the report is dated more than 1 year before the time of the civil submittal, an update letter is required before the submittal will be accepted for review. If the report or latest update is more than 18 months old when the plans reach final review, an update may be required prior to final approval of the civil plans.

  Recommendations: Report recommendations shall be included in grading plans, sections, and specifications.
- ❑ **Elevations & Contours**
  a. Elevation datum and benchmark as established by the NAVD88 [in meters and feet].
  b. Elevation of curbs or centerline of roads or streets, at maximum 100-foot intervals.
  c. Existing and proposed finish grade elevations at all grade breaks and grade transitions with a maximum 100 feet between spot elevations.
  d. Finished grade elevations on both sides of all proposed screen and retaining walls.
  e. High points shall be shown on the plans.

f. Labeled 2-foot contours minimum [extend contours a minimum of 100 feet beyond construction limits].
g. Show top of manhole elevations and offset distances from centerline for sewer, water and storm drain lines. Label diameter, material, manhole number, rim elevations, and invert elevations for all storm drain manholes. Label manhole number and rim elevations for all sewer manholes. Show cleanouts, blow offs, valves and other at or above grade improvements.
h. Pad and Finished Floor Elevations of all buildings shall be shown on the plans. Base Flood Elevations for FEMA Special Flood Hazard Areas.

❑ **Positive Drainage & Physical Obstructions**

a. Show proposed slopes and identify flowlines and swales.
b. Show positive drainage of minimum 5% away from building foundations for 10 feet.
c. If physical obstructions or lot lines prohibit 10 feet of horizontal distance, a 5% slope shall be provided to an approved alternate method of diverting water away from the foundation.
d. A 2% slope is permitted if the structure abuts hard surface (concrete, pavers, pavement, etc.)
e. In residential areas, all water shall drain to the front of the lot. If water drains to the rear of the lot, catch basins with drainage piping can be used to collect drainage. The location where the piping daylights shall be shown on the plans. See "Type B Drainage" under Stormwater and Flood Control.
f. Minimum slope in all curb types shall be 0.5%. If the minimum cannot be met, a note must be added to the grading plans stating, "water testing to verify positive drainage is required".

❑ **Details & Cross Sections**

a. Provide details and cross sections at property lines, fences, screen walls, retaining walls, berms, etc.
b. Provide details and cross sections of typical fill slopes and cut slopes.
c. Dimension all section details. Show pavement sections and all base materials for surface improvements.
d. Identify maintenance responsibility for any common element, landscaping, and easement areas shown.
e. Slopes must be provided for all paved and landscaped areas in cross sections. In areas that have varying slopes, provide min/max slope.

❑ **Earthwork, Cut & Fill**

a. List quantities of cut and fill, in cubic yards, and scope of work. Notate that any excess excavation will be transported to a designated disposal site or other construction site with an active permit.
b. Provide the cut to fill transition line.
c. Setback dimensions of cut and fill slopes from site boundaries.

❑ **Slopes**

a. Residential rear and side yards [see HMC Title 19.10.11]: Maximum slope in 15' rear yard setback area of 12:1. Maximum slope in 5' side yard setback area of 8:1.
b. Typical details of fill over natural slopes and fill over cut slopes where fill is to be placed on natural or cut slopes steeper than 5:1.
c. Check areas of existing terrain with a slope greater than 5:1 and ensure the grading plan incorporates the recommendations of the soils report.
d. Check for proposed slopes steeper than 2:1 and verify recommendations in the soils report.
e. Check slopes steeper than 3:1 for terracing requirements.
f. Provide the location and dimensions of all terrace drains for all slopes steeper than 3:1.

❑ **Buildings, Structures, Features**

a. Show any buildings or structures on the property where the work is to be performed and the location of any buildings or structures on adjacent parcels that are within 50 feet of the property line or that may be affected by the proposed grading operation.
b. Footprints of all proposed buildings must be shown. Other site elements such as trash enclosures, carports, freestanding monument signs, shade structures, accessory buildings, and all landscape areas must be shown and dimensioned.
c. Locate other existing topographical features either natural or man-made such as streets, drainage structures, pavements, fence walls, etc.

Other Sheets

❑ **Plan and Profile**

All proposed roadways must be profiled. Identify all improvements located within the public right-of-way and include all underground, at grade, and above grade utilities or appurtenances in the plan view. Include street surface slopes in profile view. See AASHTO Green Book for street design information.

❑ **Sales Trailer / Model Complex Interim Conditions Exhibit** (if applicable)

a. Subdivisions proposing to utilize a sales trailer across one or more of the future lots must provide an interim condition plan within the civils showing the required parking, accessible path, temporary utility connections, locations of on-site portable restrooms, sanitary stations, temporary access driveway, etc.
b. Any building used as a sales trailer that contains restroom or kitchen facilities shall not utilize a holding tank and is required to connect to the water and sewer services for the lot the trailer is located on.
c. Subdivisions proposing a model complex with temporary paths, sidewalks, trap fencing, etc. must provide an interim condition plan showing those improvements.

General Information

❑ **Landscaped Area Information**

All civils for projects with landscaping required per the entitlements must identify all areas that are proposed to be landscaped and shall include the following information within the civil plans and/or the associated landscape plans as specified below:

a. All sight visibility restriction zones must be illustrated on the civil and landscape plans to include but not limited to intersection sight visibility (exiting left or right from the minor road onto the major road) and left turn sight visibility (from major roadways impacting the center medians). The sight visibility zones must be illustrated per CCAUSD 201.2 and the AASHTO Policy on Geometric Design of Highways and Streets (Green Book). Trees, landscape, berms, block wall, and/or (above ground) utilities that are 24 inches in height or greater must be located outside of the sight visibility restriction zones.
b. All proposed signage on public streets must be illustrated on the civil and landscape plans. Trees shall not be planted within 50 feet in front of a traffic sign. A radius of 50-feet must be illustrated on the landscape plan from all proposed signage to denote the area where tree planting is prohibited.
c. All existing and proposed fire hydrants must be shown on the civil and landscape plans.
d. All public and private easements must be shown on the civil and landscape plans.
e. Identify maintenance responsibility of all landscaping and irrigation on the civil plans.
f. Provide the Revocable Permit number for any landscaping proposed in public right of way.
g. The civil plans must identify the total proposed landscaped area (in sq ft) in relation to the total parcel area (in sq ft) as per the entitlements. A take-off calculation of the hardscape areas versus landscape areas is acceptable provided that the minimum required landscape area is met or exceeded. Sufficient dimensioning or line and curve data (using back of curb) of fingers, terminal islands, diamonds, and buffers must be provided in the geometric control or horizontal control sheets to allow staff to verify the minimum required planting standards per Title 19 are being provided.

❑ **Adjacent Parcel Information**

Provide parcel numbers, owner information, and identify existing or proposed developments with permit information.

❑ **Accessible Routes**

All commercial, industrial, and multi-family projects shall show all existing and proposed accessible routes, accessible parking spaces, loading zones, curbs, ramps, stairs, landings at doors, etc. Other than ramps, the slope of the route shall not exceed 5% with a maximum cross slope of 2%.

❑ **Survey Monumentation**

Show all survey monumentation related to the project on the improvement plans. Also, provide note 25 from the Standard General Notes on the horizontal control and grading plans of each plan set.

❑ **Offset Crowns**

Shall be 8' minimum from curb face.

❑ **Street Sections & Details**

Provide representative street sections and details with Clark County Area Uniform Standard Drawing number.

❑ **Identify Existing Improvements**

Identify City of Henderson civil plan numbers for all existing improvements adjacent to project, including existing improvements located within the right-of-way.

❑ **Pavement tie in**

Permanent pavement sections: provide verification of existing section information.
Temporary pavement sections: remove and replace according to approved street section and soils report.

❑ **Stationing and elevations**

Provide stationing, finished grade elevations, and invert elevations at match lines and sheet breaks. All stationing to be from center of roadway with offsets.

❑ **Street Names**

Identify all street names and indicate public or private.

❑ **Existing and Proposed Rights-of-Way and Easements (including traffic signal, streetlight, or sight distance related)**

Shall be identified, located, and dimensioned. Identify easement documents and appurtenant record documents.

❑ **5-Year No Cut Policy**

Cuts made to permanent pavement that is less than 5 years old should be avoided if possible. When unavoidable, City Engineer approval is required and patch is to be per Clark County Uniform Standard Drawings 500.1 / 500.2.

❑ **Walls**

All walls and fences must be shown on civil improvement plans. Walls require a separate permit application.

❑ **Trails**

Show all existing and proposed public trails per the Master Bicycle & Trail Plan. Show connections to access ramps. Provide centerline geometry of all proposed trails, including private trails that are connecting to a public trail system.

❑ **Driveways**

Proposed commercial and multi-family driveways shall be constructed per Clark County Area Uniform Standard Drawings 222.1, 225, and 228. Proposed residential driveways shall be constructed per Clark County Area Uniform Standard Drawing 222, and 217.1 or 217.2.S1. Roll curb shall be used on residential streets with attached sidewalk fronting lots (See Roll Curb). The use of L-Curb and dustpan driveways is acceptable when detached sidewalks are proposed provided the sidewalk maintains a maximum 2% cross slope.

❑ **Roll Curb**
Roll curbing (per Clark County Area Uniform Standard Drawing 217.1 or 217.2.S1) is allowed in public or private right-of-way and is required on streets in residential subdivisions with attached sidewalk fronting lots. The following conditions apply:

a. Sidewalk adjacent to Roll Curb shall be a minimum of 5" thick.
b. All utility boxes and lids in sidewalk adjacent to roll curb must be traffic-bearing and shall not be located in the driveway limits.
c. Transition from Roll Curb to "L" Curb a minimum of 10' prior to drop inlets unless otherwise approved by City staff in the drainage study.

❑ **Sidewalks and Pathways**
Show and dimension all existing and proposed sidewalks and pathways. The minimum clear width at pinch points is 4', excluding the curb (see PROWAG). If existing facilities (power poles, appurtenances, above-ground utilities, streetlights, etc.) conflict with the proposed sidewalk, the conflicting facility must be relocated at the developer's expense. Show all driveway locations (existing and proposed) on both sides of the roadway.

❑ **Sidewalk Ramps**
Show existing and proposed wheelchair ramps, either provide detail or indicate Clark County Area Uniform Standard Drawings 235 Case I, II, or III and specify A and B lengths. If a sidewalk ramp is along a trail corridor, the landing area shall be 10 feet wide.

❑ **Sidewalk Ramps at T-Intersections**
Ramps are required at T-Intersections per CCAUSD 235.1. Crossings at T-Intersections shall be as direct (perpendicular) as possible.

Survey/ Right-of-Way

❑ **Horizontal Control Sheet**
Required for ALL Civil Improvement Plan submittals. Must be stamped by a Nevada Licensed Professional Land Surveyor (PLS) per NAC 625. The Horizontal Control Sheet shall show the project boundary relative to adjacent property lines, right-of-way lines, section lines, and all found survey monuments used in the analysis of the project boundary. The Horizontal Control Sheet should show enough monumentation to clearly identify public and private property rights and to be able to construct the improvements. The Horizontal Control Sheet should show and call out all existing and proposed easements with documentation on what map or document granted the right.

❑ **Geometric Control**
In addition to the Horizontal Control Sheet a Geometric Control Plan may also be utilized showing proposed project geometry and could be stamped by a Nevada Licensed Professional Engineer (PE) per NAC 625.

❑ **Benchmark and Basis of Bearing**
Provide the City of Henderson Benchmark number, description, and the elevation in meters and feet from the City of Henderson Survey Benchmark and Interactive Map located on the Survey/Right-of-Way and Property Management website here. Provide the basis of bearing for the subject property on all Horizontal and Geometric Control sheets.

Traffic Engineering

❑ **ADA Passing Zones** [if applicable]
In communities with 4' wide sidewalks, ADA Passing Zones must be provided every 200' per PROWAG R302.4. Passing Zones are required to be within dedicated right of way, or an easement must be provided.

❑ **Street Lighting**
Plans shall clearly indicate existing and proposed street lighting using Clark County Area standard symbols. Include the following information:

a. Street light poles, traffic signal poles, conduit runs, pull boxes, and service point locations(s). Traffic signal designs(s) shall be provided on a separate sheet(s).
b. When streetlights are to be connected to an existing circuit, the design engineer must certify that the existing circuit is capable of handling the additional circuit load (see Streetlight Circuit Capacity). Existing pedestal location must be shown on the plan. Existing circuit load information may be obtained by creating a Contact Henderson case on https://www.cityofhenderson.com/government/contact-us. Click "Contact Henderson" > "Submit a Request" > Traffic Maintenance > Streetlight Pedestal Load Verification.
c. Streetlight notes must be included on the notes page.
d. Those projects being developed in phases must submit a master streetlight and traffic control (signage) plan, encompassing all of the phases and/or units.

❑ **Streetlight Circuit Capacity**

a. Streetlight Circuit Verification table must be provided.
b. Must include a row specifying the distance from service pedestal to the farthest streetlight.
c. Must submit a Contact Henderson case to verify pedestal capacity (see link in section above).

❑ **Signage & Striping Plans**

a. Provide current City of Henderson Traffic Notes and Streetlight Notes on plans.
b. At all intersections with streets classified as a Major Collector, Minor Arterial, or Major Arterial per the MTP, both street name signs shall be 12 inches in height with City of Henderson logo. All other intersection street name signs shall be 9 inches.

c. Location and description of all new and existing signs must be shown on the plan.
d. All sign faces shall be fabricated with ASTM Type XI retroreflective sheeting. All signs, except street name signs, will have anti-graffiti protective film. The protective film and the retroreflective sheeting must be from the same manufacturer.

❑ **Bicycle Plan**

For those roads appearing on the City of Henderson bicycle plan, bicycle lane line and symbol markings shall be shown on the plans to be installed by the developer. Bicycle lanes shall be marked using material included in the NDOT Qualified Product List (QPL) that meet RTC Standard Specifications.

❑ **Additional Right-of-Way Dedication**

Shall be required at the intersection of Major Collector and larger roadway classifications per the MTP in accordance with Clark County Area Uniform Standard Drawing 201.1.

❑ **Master Traffic Plan**

Required when there are two or more traffic sheets.

❑ **Pavement Markings**

a. Existing pavement markings as they tie in to proposed pavement markings.
b. Existing pavement markings to be removed must be so noted.
c. Show all pavement marking to be installed in their ultimate location, if right-of-way, roadway or patent easements exist. Additional pavement may be required to provide for the ultimate design. If necessary right-of-way, roadway easement or government patent easement to install the additional pavement is not available, the engineer must indicate this condition.
d. Raised pavement markers shall be used for all center lines and lane lines installed at their ultimate location. Polyurea will be used for bike lane lines, edge lines, and all transverse markings including but not limited to crosswalks, stop bars, and word/symbol markings.
e. The minimum width of through lanes shall be 11 feet, unless directed otherwise by the City of Henderson Public Works Traffic Engineering Division.
f. Lane width dimensions are required to be shown on the plans.

❑ **Pavement Transitions:**

a. All transition lengths shall conform to the Manual on Uniform Traffic Control Devices and designed using a minimum of the posted speed limit plus 10 mile per hour, or as determined by City of Henderson Public Works Traffic Engineering Division.
b. Temporary transition pavement markings in the transition area can be either raised pavement markers or detour grade tape, dependent upon the type of transition and the anticipated service life required.
c. Object marker signs (OM-3R's or OM-3L's) or directional signs (WI-8's) shall be installed in the existing transitions and spaced in accordance with the posted speed limit (25 MPH = 25' spacing) the Manual on Uniform Traffic Control Devices – latest edition.

❑ **Vertical Curves**

Shall be provided for changes in grade of 1.0% or greater. Vertical curves shall be designed for the posted speed limit plus 10-mph. The minimum length for a vertical curve shall be 100.00 feet.

❑ **Sight Visibility Zones**

a. All sight visibility restriction zones must be illustrated on the civil plans (grading and traffic sheets) and landscape plans to include but not limited to intersection sight visibility (exiting left or right from the minor road onto the major road) and left turn sight visibility (from major roadways impacting the center medians).
b. The sight visibility zones must be illustrated and fully dimensioned on the traffic plans per CCAUSD 201.2. Use of a sight visibility zone different than that shown herein shall require a sight visibility analysis prepared and submitted for approval to the local entity engineer by a civil engineer registered in the State of Nevada.
c. Monument signs, trees, landscape, and/or (above ground) utilities that are 24 inches in height or greater shall not be located within public rights-of-way, easements, amenity zones, or the sight visibility restriction zones per Clark County Area Standard Drawing No. 201.2 and H.M.C. 19.12.5.D.3.
d. The following sight visibility note must be included on all grading, traffic, and landscape plans: "Monument signs, trees, landscape, structures, objects of any kind, and/or (above ground) utilities that are 24 inches in height or greater shall not be located within the sight visibility restriction zones."

❑ **Sight Distance**

The sight distance calculations shall utilize the design speed of the road and the appropriate Case in the latest edition of the AASHTO Green Book. The design speed shall be posted speed plus ten (10) miles per hour, or as determined by City of Henderson Public Works Traffic Engineering Division.

❑ **Roundabout Design**

See the City of Henderson Roundabout Design Checklist here: Public Works Forms

❑ **Traffic Signals**

a. At all intersections of streets classified as Major Collector, Minor Arterial, or Major Arterial per the MTP, traffic signal pole shafts, conduits, pull boxes, service pedestals, controller cabinet and any other underground improvements, are required. Type XX-A or XX-B poles shall be installed to support future mast arms that will serve the ultimate lane configurations for the intersections.
b. Streetlight luminaires on traffic signal poles shall be installed per intersection streetlight requirements per City of Henderson Street Lighting Standards and Approved Streetlight Supplier List.

c. All traffic signal pole assemblies shall be hot-dipped galvanized in accordance with ASTM A123 and shall not be painted.
d. Show all existing traffic signal poles, pull boxes, conduit runs, service points, loop detectors, and facilities/hardware at intersections with an existing traffic signal or facilities if future traffic improvements are planned.
e. Pull boxes shall not be located within wheelchair ramps, driveways, or private street roadways.
f. When a controller cabinet, service pedestal; Type XX, XX-A, XX-B or 1-A or 1-B pole is installed, the foundation shall be installed behind the sidewalk. A minimum clear area of six (6) feet long by three (3) feet wide shall be provided behind the sidewalk for each foundation. The foundation shall be located directly behind the sidewalk and centered within the length of the clear area.

Stormwater and Flood Control

❑ **Storm Drain and Wet Utilities in Shared Corridors**
Show the storm drain and wet utilities together on the plan and profile sheets. This applies to both street sections and easements.

❑ **Flood Zone Identification -** If the subject property is located within a Special Flood Hazard Area, show the flood zone boundary (or boundaries) on all grading and storm drain plan and profile sheets, identify the type of flood zone(s), and list all zones on the FEMA Flood Zone Designation Block along with the FIRM community panel number and date.

❑ **Nuisance Runoff -** Nuisance runoff mitigation shall be required after 1,000 feet, or every 20 lots, of surface street flow within proposed street improvements, unless waived by Development Agreement.

❑ **Type B Drainage**
Shall be allowed only where lots drain directly to public drainage facilities, public parks, common elements or golf courses. Engineer to specifically identify those lots in which Type B drainage is proposed.

❑ **Storm Drains and Drop Inlets**
Shall be shown in both Plan and Profile views. The design of the storm drain shall comply with the approved drainage study for the site and the Clark County Regional Flood Control District Hydrologic Criteria and Drainage Design Manual. Applicant shall calculate anticipated loading conditions and design drop inlets intake/discharge structures and storm drains accordingly. The minimum size public storm drain shall be 18 inches. Provide size, material type, slope, distance, cover, trench backfill sections, invert elevation, and manhole rim elevation. All utility crossings shall be shown in profile section with all clearances dimensioned. Lines and appurtenance symbols should be color-coded as indicated below. Associated notes may be in black.
- Storm Drain – Orange (AutoCAD Color Index 30 or equivalent)

❑ **Channel Improvements**
Provide plan and profile sections and details as necessary to fully describe proposed channel improvements. All utility crossings shall be shown in profile section with all clearances dimensioned.

Utility Services

The plans shall reflect the minimum requirements found in the Uniform Design and Construction Standards for Potable Water Systems, latest edition, referred to as UDACS, including the City of Henderson Addendum, and the Design and Construction Standards for Wastewater Collection Systems latest edition, referred to as DCSWCS, including the City of Henderson Addendum. The following items shall be included, but are not limited to:

❑ **General Information**
a. All utility sheets, except for the Master Utility Plan, shall be drawn at a maximum of 1" = 40' scale.
b. Shade back all non-utility line work.
c. Provide line and curve data for mains.
d. Lines and appurtenance symbols should be color-coded as indicated below. Associated notes may be in black.
   - Water - Blue (AutoCAD Color Index 5 or equivalent)
   - Sewer - Medium Green (AutoCAD Color Index 62 or equivalent)
   - Reuse Water - Dark Purple (AutoCAD Color Index 194 or equivalent)
e. Depict and dimension new, future, and existing utilities, street centerline, back-of-curb, etc.
f. Indicate rights-of-way, property lines, and easements on all utility sheets.
g. Indicate driveway locations for residential subdivisions.
h. Meter boxes shall not be located in driveways.
i. Master Utility Plan (required when there are two or more utility plan sheets) – Provide water and sewer lines, valves, meters, backflow prevention assemblies, and fire hydrants for the overall project.
j. Provide construction notes on all utility sheets.
k. Provide City of Henderson standard sewer and water notes on the notes sheet.
l. Label all mains as "public" or "private".
m. Label the City of Henderson plan number for existing mains or permit number for all proposed mains.
n. Label all water and sewer main segments with length, size, material, and pressure class or SDR rating.
o. All plan text, notes, callouts, construction notes, section details, etc. should be oriented to be read from the bottom of the page or the right-hand side of the page.
p. Include sight visibility restriction zones on Utility Plans.
q. Projects must comply with AB220, HMC Title 14, and HMC Title 19 for septic system and conservation requirements.

r. Any City utility proposed to be constructed outside of a paved area must be within an easement and must be provided a minimum 12-foot wide, H20-rated, all-weather access over the top of the utility.
s. Streets containing public utilities and access roads providing maintenance access to public utilities shall accommodate a turning radius of not less than 85-foot outside and 50-foot inside. All turns shall have a minimum roadway width of 24 feet.

❑ **Plan and Profile Sheets**

a. All underground wet utilities shall be shown in both Plan and Profile views.
b. Crossing Elevations – Provide top-of-pipe elevation for the lower pipe and bottom-of-pipe elevation for the upper pipe at all main crossings.
c. Construction notes must be used in all profiles.
d. Provide minimum required depth callouts on all water and sewer mains at the specific location of the minimum depth on the profile. Include the actual depth of pipe in the callout.
e. Profile all public water and sewer mains.
f. Provide match lines in Plan and Profile views at all view continuations.
g. Label invert elevations for water and sewer mains at match lines in profiles.
h. Label the length of each pipe segment between fittings.
i. Label all fittings, valves, horizontal and vertical deflections, and related appurtenances using construction notes.
j. Identify all points of connection with a POC arrow.

❑ **Water System**

a. Label pressure zones on all proposed and existing mains (i.e. {2240 PZ}), including applicable zone boundaries.
b. Label all meter sizes and uses (i.e. domestic, irrigation, etc.). Label sizes and types of all backflow prevention devices. For commercial or multi-family developments with combined fire & domestic service, meter-sizing calculations shall be provided showing the domestic demand with submitted plans.
c. Restrained Joints – Provide details and restrained lengths in plan and profile for all mechanically restrained joint sections of pipe, including dip sections. Provide calculations (sealed by a Nevada registered professional engineer) with the civil improvement plan submittal.
d. Call out appropriate UDACS standard plate number for all water appurtenances.

❑ **Sewer System**

a. Label all rim elevations, invert elevations, sizes, and numbers for all manholes, and label invert elevations for all clean-outs on utility plan sheets and plan and profile sheets.
b. Sewer backwater valves shall be provided on all individual lots having finished floor elevations below the upstream manhole rim elevation.
c. Provide flow arrows on all existing and proposed sewer mains.
d. Call out appropriate DCSWCS standard plate number for all new sewer appurtenances.

Fire Safety

❑ **Supply and Underground Mains**

a. Two sources of water supply are required whenever 4 or more fire hydrants and/or sprinkler lead-ins are installed on a single system. Two connections to the same main shall be permitted provided that the main is valved such that an interruption can be isolated (commercial, industrial, and multi-family).
b. For systems required to have two sources of water supply sectional control valves shall be installed so that no more than 2 fire hydrants and/or fire sprinkler lead-ins can be out of service due to a service interruption (commercial, industrial, and multi-family).
c. Supply lines feeding multiple fire hydrants shall have a minimum diameter of 8 inches, with a dead-end maximum length of 150 feet of 6-inch underground pipe supplying only one hydrant.
d. Underground piping shall have a minimum working pressure of 150 psi (Class 235). Underground piping connected to a fire pump, or a Fire Department Connection (FDC) shall have a minimum working pressure of 200 psi (Class 305).
e. All on-site underground water mains and materials shall be U.L. listed, A.W.W.A. compliant, and shall be rated for the appropriate working pressure.
f. Each fire lead-in shall have a post indicator valve (PIV) located a minimum of 5 feet from the building footing. Exception: Where site layout does not allow a PIV to be installed without possible vehicular damage and/or infringing on the minimum clear width of the fire lane, a non-rising stem (NRS) gate valve may be installed with a roadway box and debris cap in lieu of the PIV as long as a T-type underground wrench is provided in the Fire Riser Room for emergency use.
g. All valves on backflow prevention devices (DCDA or RPDA) shall be provided with indicating valves (see UDACS Plate 20B) that must be locked in the open position. If the backflow assembly controls only a single fire sprinkler system and both valves are electronically monitored (i.e. - tamper switches installed), then the PIV can be eliminated.

❑ **Fire Lanes**

a. Provide a complete fire lane plan including, but not limited to red-painted curbs, "No Parking Fire Lane" stenciling and/or signage details, turning radius overlay, reflective markers, etc.
b. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or

facility. Exceptions: Where suitable mitigation is provided through an acceptable alternate method or code modification the fire code official is authorized to increase the dimension of 150 feet.

c. Fire apparatus access roads shall have an unobstructed width of not less than 24 feet, exclusive of shoulders, and an unobstructed vertical clearance of not less than 13 feet 6 inches.
d. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus, with a minimum vehicle load of 33,000 pounds per axle and shall be surfaced and paved to provide all-weather driving capabilities. Exception: Temporary access roads serving only buildings under construction shall not be required to be paved
e. The required turning radius of a fire apparatus access road shall be no less than 28 feet inside turning radius and 52 feet outside turning radius.
f. Dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus (i.e. - bulbs or approved equal).

❑ **Aerial Apparatus Access Roads**

a. Where the vertical distance between the grade plane and the highest roof surface exceeds 30 feet, approved aerial fire apparatus access roads shall be provided.
b. One or more of the required access routes meeting this condition shall be located not less than 15 feet and not greater than 30 feet from the building and shall be positioned parallel to one entire side of the building.
c. Overhead utility, power lines, trees, carports, and canopies shall not be located over the aerial fire apparatus access road or between the aerial fire apparatus road and the building.

❑ **Slope Gradient**

a. The grade of the fire apparatus access road shall not exceed 12 percent. Exception: Hillside Overlay District allows grades up to 15 percent per the Development Code.
b. The angles of approach and departure for fire apparatus access roads shall have a maximum grade change of 6 percent for 25 feet before or after the grade change.

❑ **Dual Access**

a. Approved secondary access shall be provided for 20 or more dwelling units, road(s) with dead ends or with a single point of access more than 600 feet, and for all commercial and industrial developments. Exception: Hillside Overlay District areas are not required to provide dual access.

❑ **Markings**

a. Fire apparatus access roads shall be marked where required to prohibit parking and other obstructions. Marking shall consist of painting the curb, or the side of the street, where no curb is present, with a suitable coat of industrial red enamel along the entire length of road where parking is prohibited.
b. Each section of curb that is painted red shall also be marked by signage stating, "NO PARKING FIRE LANE". Signs shall be installed in accordance with current Manual on Uniform Traffic Control Devices (MUTCD), Regional Transportation Commission (RTC) uniform standard drawings and specifications and City standards. Signs shall be located at each end of painted curb, and additionally in between so that the maximum separation between signs is 100 feet, as measured along the centerline of the fire apparatus access road.
c. In lieu of providing multiple signs, where a minimum of one sign is provided at every entrance stating "ON-STREET PARKING IN MARKED FIRE LANES PROHIBITED", fire lanes may be marked by painting the words "NO PARKING FIRE LANE", over the face of the red-painted curbs. The words on the curbs shall be painted in white letters not less than 4 inches in height with a brush stroke of not less than ¾ inch. The maximum separation between markings shall be 50 feet, as measured along the centerline of the fire apparatus access lane.

❑ **Traffic Calming Devices**

a. Traffic calming devices shall be prohibited unless approved by the fire code official. Exception: Speed humps are allowed on private fire apparatus access roads serving commercial and industrial buildings when approved by the fire code official. The location(s), the number permitted, and the design of the speed hump(s) shall meet the approval of the fire code official.
b. Any other traffic calming devices shall comply with the "Traffic Calming Policy for Public and Private Roadways Within the City of Henderson". https://www.cityofhenderson.com/government/departments/public-works/divisions/traffic-services

❑ **Access Gates**

a. The installation of access gates across a fire apparatus access road shall be approved by the fire code official. Access gates shall have an approved means of emergency operation. The minimum clear opening width shall be 20 feet. Swing gates shall swing in the direction of travel (away from the approaching vehicle).
b. Electronically controlled gates shall be provided with an approved vehicle detector/receiver system (i.e. - AVI Loops). Automatic access gates shall be secured in the open position when they are out of service or experience power failure.
c. Manually operated gates shall have a Knox padlock or Knox key box as approved by Fire Safety.
d. A green reflective pavement marker shall be installed in the pavement of the roadway near the entrance to identify a gate obstruction to fire access.

❑ **Hydrants**

a. Fire hydrants shall be provided for the protection of buildings, or portions of buildings, as required by IFC Section 507. Design shall comply with the Clark County Uniform Design and Construction Standards (UDACS) for public installations or NFPA 24 for private installations.
b. Fire hydrants shall be provided along required fire apparatus access roads.
c. The spacing of fire hydrants shall start by placing fire hydrants at all intersections. In all residential areas (R-3 occupancies and single-family dwellings built under the IRC only), hydrants shall be spaced not to exceed 500 feet. Hydrants at intermediate intersections may be eliminated provided the maximum spacing is not exceeded.
d. The maximum distance from a one- or two-family dwelling to a fire hydrant shall not exceed 300 feet, as measured from an approved point on a street or road frontage to a fire hydrant. An approved point is defined as the property line farthest from the hydrant.
e. In all commercial and industrial areas, including multi-family R-1 and R-2 occupancies, hydrants shall be spaced not to exceed 300 feet, or 400 feet if all buildings are protected by approved automatic sprinkler systems.
f. The maximum distance from a hydrant to the end of a dead-end street shall not exceed 200 feet.
g. The maximum distance from a fire hydrant to a fire department connection (FDC) supplying fire sprinklers and/or standpipes shall not exceed 100 feet, as measured by an approved route. An approved route is defined as an unobstructed path of travel on which hose can easily be laid.
h. Where streets are provided with median dividers or have four or more travel lanes and a traffic count of more than 30,000 vehicles per day, hydrants shall be spaced at a maximum of 1,000 feet along both sides of the street; arranged on an alternating basis at 500-foot intervals.
i. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide water for transportation hazards.
j. No fire hydrant shall be located within 6 feet of a driveway, power pole, light standard, or any other obstruction. For wall, fence and planter locations, a perimeter around the hydrant measuring a minimum of 3 feet from its exterior shall be maintained clear of all obstructions.
k. Fire hydrants shall be located 4 feet to 7 feet from the back of curb. Where it is not possible to locate the hydrant a minimum of 4 feet from the back of the curb, the hydrant shall be protected against vehicular impact in accordance with IFC Section 312. (PROWAG clear width requirements apply.)
l. A concrete pad, with minimum dimensions of 3 feet by 3 feet, with a minimum depth of 10 inches, shall be provided at each fire hydrant.
m. Hydrants shall be painted safety yellow for public and safety red for private and shall have red painted curbs 15 feet in each direction. Exception: Do not paint curbs red in front of driveway openings.
n. Hydrant locations shall be marked by means of a blue colored reflective marker in the fire access lane. The marker shall be located in the center of a drive lane where parking is not anticipated, nearest to the hydrant.

❑ **Fire Flow**

a. The minimum number of fire hydrants required to meet the fire flow shall be based on a maximum flow of 1,000 gallons per minute per hydrant. All hydrants utilized in providing the fire flow shall be within 750 feet of the structure being protected as measured along the street or approved fire apparatus access road.
b. Fire hydrants on adjacent properties shall not be considered unless fire apparatus access roads extend between properties and recorded easements are established.
c. Fire flow must meet the City's water design standards with a minimum 20 psi residual pressure.
d. Fire flow shall be based on IFC Appendix B Table B105.1(2). Provide all necessary information for each building being proposed (commercial, industrial, multi-family, and single-family) per the following chart:

Building Height (in feet)	_____ FT
Number of Stories	_____
Occupancy Classification	_____
Construction Classification	_____
Total floor area of ALL levels	_____ SF
Floor area of three largest successive floors	_____ SF
Automatic Fire Sprinkler System 50% Reduction (minimum 1,500 GPM)	___ YES ____ NO
Fire flow requirement is _____ GPM at 20-psi residual pressure.	

Park Planning

❑ **Landscape Plan**
Provide a Landscape Plan with amenities for open space, trails, and parks to Park Planning for review and approval concurrent with the civil improvement review. Conformance with Parks & Recreation requirements as stated in Part 3 of this checklist, and approved park agreements, is required.

❑ **Open Space Parkland**
When public space is made a condition of approval, show a contribution of 5.5 acres per 1,000 residents (number of units x persons per household)/1,000 x 5.5 = acres of parkland required), or per the Park Agreement, when required.

❑ **Turnkey Public Parks or Trails** [if applicable]
Projects which contain public parks or trails which will be turned over to the City of Henderson for maintenance shall include, at a minimum but not limited to, landscape, irrigation plans, and other associated plans to properly show all proposed publicly maintained trail or park improvements in the civil submittal. These sheets shall be included in the civil sheet index, shall be numbered into the overall set, and a Park Planning approval line shall be included in the cover sheet signatory section.

❑ **Turnkey Trail Corridors** [if applicable]
All developer turnkey trail corridors, landscape plans with amenities for open space and parks must provide a separate Landscape Design Plan submittal to Park Planning which will comply with Parks and Recreation Design Guidelines (plan to included lighting, landscaping, irrigation, plant and tree counts, and trail details).

a. Trails must meet City of Henderson and AASHTO standards.
b. Provide trail cross-sections and details, provide fencing or railing as required.
c. Provide 12' AC or 10' concrete trail with landscaping, lighting, irrigation, and 3' shoulders clear on both sides of the trail.
d. Provide lighting plan to show 0.5 foot candle light level along trail and 1.0 foot candle at all pedestrian crossings and major grade changes.
e. Finish grades must be shown every 100' of the trail.
f. Provide pedestrian access to trails and open space from development.
g. Identify pedestrian crossings for trail connection.
h. Provide curb cuts and removable bollards at trail – vehicular crossings for park maintenance [when applicable].
i. Provide signage and striping for all trails.
j. Identify Utilities for irrigation (Meter & RPPA).

Building Safety

❑ **Adjacency to Slopes**
The placement of buildings and structures on and/or adjacent to slopes steeper than 3:1 shall be in accordance with IBC 1808.7.

❑ **Retaining Walls**
The surrounding site shall be graded such that water cannot flow over the top of any retaining wall. Design documents shall clearly address the need (or lack thereof) for drainage provisions behind the wall. Items to be addressed are a gravel/cobble drainage blanket, filter fabric and drainage pipes. Specific requirements may be implemented by the authority having jurisdiction based upon prevailing geologic and climate conditions.

❑ **Terraced Retaining Walls**
Drainage between terraced retaining walls shall be per Section J109 of the IBC. Swales or ditches shall be provided on terraces per section J109 of the IBC.

❑ **On-Site Accessibility**

a. All commercial, industrial, and multi-family projects must provide an accessible path from the adjacent right of way and from required accessible parking stalls to all buildings per Chapter 11 and related appendix of the currently adopted International Building Code (IBC). Standards shall be in accordance with ANSI 117.1, 2009.
b. The accessible path must be identified and dimensioned with sufficient information to verify compliance. Ramps must be identified where required and details provided if non-uniform standard ramps are proposed.

Community Development

The plans shall reflect compliance with the following:

a. All requirements of the City of Henderson Development Code (Title 19 of the Henderson Municipal Code), even if not listed as a condition of approval of the approved entitlement.
b. All plans and exhibits presented and amended as part of the final entitlement approval.
c. All additional items required to fulfill the entitlement conditions of approval.

❑ **Non-Residential / Multi-Family**

a. Square footage, setbacks, and location of all proposed buildings and structures.
b. Site data notes identifying quantities of vehicular parking (including accessible), bike parking, as well as street and sidewalk widths.
c. Site structures such as trash enclosures, freestanding monument signs, shade structures, and carports (location, separation from residential, conflicts with parking).
d. A Republic Services approval letter must be provided for any proposed trash enclosures.

e. Screen and retaining wall heights and details, including materials.
f. Landscape/planting areas: Provide total landscape area (in sq ft) in relation to total parcel area (in sq ft), full interior dimensions and locations of landscape features including fingers, terminal islands, diamonds, and buffers. Planting plans are not required with civil improvement plans. See "Landscaped Areas Information" section above (page 7).
g. Sight visibility zone conflicts (walls, landscaping, utility equipment, etc.).

❑ **Single-Family Residential**

a. Site data note identifying total number of residential lots and common elements.
b. Subdivision configuration, including lot numbering, must match the Tentative Map.
c. Street alignments, names (if applicable), and sections.
d. All lots, common elements, and/or landscape areas must be identified and labeled with full dimensions and areas. Areas shall be in square feet and not acres. Identify which (if any) common elements are providing amenities (such as parks, shade structures, etc.) for bonding purposes.
e. Setbacks, slopes (percentage and ratio) and grading including driveway slopes (for custom homes).
f. Screen and retaining wall heights and details, including materials. Scarps that may affect side or rear setbacks.
g. Sight visibility zone conflicts (walls, landscaping, utility equipment, etc.).

❑ **Hillside Overlay** [if applicable]

a. Hillside restoration plan, including bond fees at both standard and prevailing wages.
b. Retaining wall height, type, and terracing method.
c. Hillside areas of disturbance, revegetation/revarnishing.
d. Hillside cut/fill heights and lengths.

Part 5 Resubmittal Process

All resubmittals are made through the DSC Online Portal and are required to include:

a. A "Response to Comments" in the form of a letter, comment matrix (spreadsheets must be converted to PDF format), or software generated markup summary. The response to comments must clearly identify the page number, comment, reviewer (or department/division), and engineer's response. The filename should be in the following format, "Response to (v1, v2, v3, etc.) Review".
b. Any project with design changes made between reviews that ARE NOT the result of addressing a direct comment MUST include a separate "Change Log Letter" detailing all changes made to the plans. Any resubmittals with substantial design changes discovered during review that were not identified by a Change Log Letter will be rejected as incomplete and will be required to re-start the current review to allow all affected departments the full time needed to review the changes.
c. Based on the recommendations of the Best Practices Guide for Quality Plan Submittals released by the Nevada State Board of Professional Engineers and Land Surveyors, plans submitted for review cannot be "swapped out" or replaced during the review process. If corrections or additional design changes are made by the design team during the review period, they may request that the current review be withdrawn, then revised / corrected plans submitted. A new review period and target review completion date will start based on the submittal date of the revised / corrected plans.

Part 6 Final Approval and Last Steps

The following requirements must be met prior to final civil approval:

a. Upon notification that civil plans have been approved for final review, an updated bond and fee estimate excel file should be uploaded to the DSC Online portal or emailed to pweplan@cityofhenderson.com for review. Please ensure that the bond estimate is filled out completely and that all non-standard items, demolition items, or other improvements that are not listed on the form have been added to the custom section and that the quantities listed match the quantity list on the notes sheet of the civil plans.
b. All fees, including the civil fees, traffic fees (if applicable), and utility fees (if applicable) must be paid.
c. If applicable, the bond must be posted, the improvement agreement executed, corporate docs and certificate of insurance submitted. See the document "Improvement Agreement Submittal Instructions" here for specifics: Forms | Henderson, NV (cityofhenderson.com)
d. If applicable, the Hillside Restoration Bond must be posted.
e. The associated grading permit must be issued prior to final civil approval. Failure to submit the grading permit package for review immediately after submitting your civils may delay civil approval.
f. The SW Gas approval letter must be uploaded to the DSC Online Portal and the approval information must be added to the SW Gas approval line on the cover page of the civil plans before we can approve the plans for final review.
g. Any permits or approvals from outside agencies that are required must be obtained before we can approve the plans for final review. This applies to LVVWD, SNWA, NDOT, NV Energy Transmission, etc.
h. When required, notarized permission to grade/construct letters from the adjacent parcel's current owner must be submitted before we can approve the plans for final review. Verification will be performed.

Part 7
CAD Files

Public Works CAD File Requirement

All projects must submit a copy of the CAD files and supporting files for City records prior to final approval. You will receive a File Request from our Geospatial Team when your plans are approved for final review.

1. File must be compatible with Autodesk Civil 3D/AEC Collection 2023 or later.
2. File must be georeferenced to NAD 83 NCRS, LAS VEGAS Zone, US Foot or NAD 83 NV State Plane East Zone, US Foot coordinate system.
   NOTE: Manually setting the pin coordinates from map data will not be accepted.
3. Place all files into a *.ZIP file using ETRANSMIT method (preferred).
   NOTE: ETRANSMIT with Exploded AEC Objects.
4. Include anything the CAD base file references including XREF's, Plot Files, Horizontal and/or Survey Control plans (including line and curve data), general notes, basis of bearing, temp projection, etc.
5. Proprietary information utilized by your firm may be excluded (i.e., scripts, macros, etc.).
6. If you have any questions on this requirement, please contact the Public Works GIS team at 702-267-3050 or email pwpr_gis@cityofhenderson.com.

Utility Services CAD File Requirement

All projects that include water and sewer infrastructure must upload a CAD file meeting the Utility Services Department requirements as soon as the plans are approved for final review. See cohdus.com for specific information including formatting requirements, seed files, tests, and to upload the final file. Contact info is located here: Contact Us

Part 8
Contact Info

Plan Review and Submittal Questions Contact Information

Building Safety (702) 267-3650 or bldgplancheck@cityofhenderson.com
Fire Safety (702) 267-3630 or FIREeplan@cityofhenderson.com
Land Development (702) 267-3680 or pweplan@cityofhenderson.com
Stormwater and Flood Control (702) 267-3680 or floodcontrol@cityofhenderson.com
Utility Services (702) 267-3670 or UtilityCivilReview@cityofhenderson.com
Traffic Engineering (702) 267-3099 or pwtrascope@cityofhenderson.com
Community Development (702) 267-3640 or cdeplan@cityofhenderson.com
Park Planning (702) 267-4000 or parkplanning@cityofhenderson.com
Survey / Right-of-Way (702) 267-1300 or SROW@cityofhenderson.com