

City of Casper
IT/GIS Department
200 N David Street
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To: The Public

From: City of Casper Engineering, Community Development and IT/GIS Departments

Date: 2017.4.6(**Revised**)

Subject: City of Casper Digital Plat Submission: CAD Deliverable Standards

Technical Memorandum

History:

[Title 16](#) of the City of Casper Municipal Code outlines the technical procedures needed to submit plat data and documents to Community Development staff. In an attempt to more clearly define the digital requirements for plat submittals, the City of Casper passed [Ordinance 14-14](#) in 2014. Within this ordinance is language pertaining to the specific digital elements that are to be delivered with plat submittals. In conjunction with this ordinance, the City of Casper published a standard CAD template through its website. This template was intended to adhere to the U.S. National CAD Standard (**NCS**) Version 5.0 in both layering conventions and their accompanying drafting elements (*e.g. blocks, colors, linetypes, annotation styles, plot styles, etc.*). The function of this standard CAD template was to provide the design community with a tool to more easily transmit plat data to Community Development staff so that review, QA/QC and input processes could be streamlined. Since its initial publication, the standard CAD template has been used intermittently and the process improvements it was intended to support have not been fully realized. In September of 2015, an Engineering, Community Development and GIS working group was established to develop a new standard CAD template for the City of Casper. The result of this collaboration is the development of the **Natrona Regional Geospatial Cooperative (NRGC)** standard template. The NRGC standard template is a complete Civil Engineering and Land Surveying design template that takes advantage of the automated and intelligent design tools (*dynamic labels, point styles, label styles, annotative blocks, survey processing functions, parceling, alignments, profiles, surfaces, etc.*) in the AutoDesk Civil 3D platform. This technical memorandum was developed to accompany the release of this template and is intended to provide design professionals with an authoritative reference when developing plat submittals.

Overview:

The **Natrona Regional Geospatial Cooperative (NRGC)** standard template adheres to the U.S. National CAD Standard (**NCS**) Version 5.0 structure. This enables the NRGC working group to identify and develop, discipline specific, layering to account for the various conditions that occur during the platting and design processes. This also allows the working group to identify the digital data workflows needed to extract plat submittals for entry into the NRGC GIS system. As a result, the NRGC standard template can be broken into two main groups **Civil** and **Survey**. Layers within the template with the prefix **C** are Civil Engineering layers. Layers within the template with the prefix **V** are Land Surveying layers. Layers within

the template with the prefix **G** are general annotation and line layers (e.g. *title blocks, misc. details, north arrow, bar scale, etc.*). Plot styles within the NRG standard template are style based, and utilize an NRG standard template .stb file. Style based plotting explicitly states the plot parameters as opposed to using a color (.ctb) identifier to achieve a specific line weight, type, color and opacity/screening. Text elements within the NRG standard template (*notes, labels, annotation, dimensions, etc.*) are annotative in nature and based on True Type fonts. True Type fonts do not behave the same as traditional CAD fonts that are based on shapes (e.g. *simplex.shx, roman.shx, complex.shx*). To address the behavioral differences, several annotative text styles have been provided to give designers aesthetic options when composing elements in the NRG standard template. Points in the NRG standard template utilize a comprehensive Description Key Library that defines numerous label and point display styles.

Usage/Contents:

The **Natrona Regional Geospatial Cooperative (NRGC)** standard template is available to the public through the City of Casper Engineering site:

<http://www.cityofcasperwy.com/cms/one.aspx?pageId=87224>

Within the zipped download file are a series of subfolders containing files related to the use of the NRG standard template. The following is a breakdown of the zip file contents:

1. **01_dwt**: contains the **NRGC_NCS_v1-x.dwt** template file
2. **02_plot**: contains the **NRGC_NCS_v1-x.stb** plot file
3. **03_survey**: contains the needed base files for survey processing
4. **04_docs**: contains the NRG standard template technical memorandum and change log

The following table highlights the elements associated with digital plat submissions. Table elements highlighted in green are minimum required layers. These layers must contain drawing elements if they were included in the plat. Failure to include these drawing elements will result in the digital plat submission being returned to the applicant for corrections.

Layer Name	Geometry	Layer Description	Layer Contents
V-BNDY-ANNO-N	Line	Survey: Boundary: Annotation: New	Proposed subdivision boundary lines annotation (<i>bearing, distance</i>)
V-BNDY-SUBD	Line	Survey: Boundary: Subdivision	Existing subdivision boundary lines
V-BNDY-SUBD-N	Line	Survey: Boundary: Subdivision: New	Proposed subdivision boundary lines
V-BNDY-CORP	Line	Survey: Boundary: Corporation	Existing corporate limit lines
V-BNDY-CORP-N	Line	Survey: Boundary: Corporation: New	Proposed corporate limit lines
V-PROP-NODE	Point	Survey: Property: Node	Existing property corners
V-PROP-NODE-N	Point	Survey: Property: Node: New	Proposed property corners
V-ESMT-LINE-ANNO	Text	Survey: Easements: Line: Annotation	Existing easement lines annotation (<i>description, width, type, bearing, distance, instrument number, book & page</i>)
V-ESMT-LINE	Line	Survey: Easements: Line	Existing easement lines
V-ESMT-LINE-ANNO-N	Text	Survey: Easements: Annotation: New	Proposed easement lines annotation (<i>description, width, type, bearing, distance</i>)
V-ESMT-LINE-N	Line	Survey: Easements: Line: New	Proposed easement lines

V-PROP-ANNO	Text	Survey: Property: Annotation	Existing lot lines annotation (<i>number, block, tract, bearing, distance</i>)
V-PROP-PRCL	Line	Survey: Property: Parcel	Existing lot lines
V-PROP-ANNO-N	Text	Survey: Property: Annotation: New	Proposed lot lines annotation (<i>number, block, tract, bearing, distance</i>)
V-PROP-PRCL-N	Line (Closed Polyline)	Survey: Property: Parcel: New	Proposed lot lines
C-ROAD-ANNO	Text	Civil: Roadways: Annotation	Proposed road centerlines annotation (<i>name, ROW width, bearing, distance</i>)
C-ROAD-CNTR-N	Line	Civil: Roadways: Center: New	Proposed road centerlines
V-ROAD-CNTR	Line	Survey: Roadways: Center	Existing road centerlines
C-TOPO-FLHA	Line	Civil: Topographic feature: Flood hazard area	Proposed floodway/flood plain lines
V-TOPO-FLHA	Line	Survey: Topographic feature: Flood hazard area	Existing floodway/flood plain lines
C-TOPO-CONT-TEXT	Text	Civil: Topographic feature: Contour: Text	Proposed contour lines annotation
C-TOPO-MAJR	Line	Civil: Topographic feature: Major contour	Proposed contour lines (<i>major</i>)
C-TOPO-MINR	Line	Civil: Topographic feature: Minor contour	Proposed contour lines (<i>minor</i>)
V-TOPO-CONT-TEXT	Text	Survey: Topographic feature: Contour: Text	Existing contour lines annotation
V-TOPO-MAJR	Line	Survey: Topographic feature: Major contour (Surface)	Existing contour lines (<i>major</i>)
V-TOPO-MINR	Line	Survey: Topographic feature: Minor contour (Surface)	Existing contour lines (<i>minor</i>)
G-ANNO	Text	General: Annotation: Text	NAD83(86) State Plane Coordinate pair values

minimum required
layers

Conditions of Use:

The Engineering, Community Development and GIS working group responsible for developing and maintaining the ***Natrona Regional Geospatial Cooperative (NRGC)*** standard template recognizes that each design project is different and that flexibility is needed when designing, drafting and composing plan sets. With the exception of annotation layers, additions or modifications to layers, linetypes, colors, line weights or styles must be approved prior to submitting digital files. Approval of changes gives the NRGC working group the opportunity to make permanent improvements to the NRGC template to enhance its overall utility. It is the intention of the NRGC working group to continually refine and develop this template to adapt to the changing technologies and workflows of the design community. If users of the NRGC standard template have questions, comments or concerns regarding the use or structure of the NRGC standard template, please submit them to the appropriate engineering, community development or GIS staff.