

**SECTION 100**  
**TITLE, SCOPE AND GENERAL CONDITIONS**

110.00	TITLE.....	4
111.00	Purpose.....	4
120.00	SCOPE.....	4
120.01	Federal and State Laws .....	4
120.02	Jurisdiction.....	4
121.00	Alternate Materials and Methods of Construction.....	5
122.00	Modifications .....	5
123.00	Tests .....	5
124.00	Organization, Enforcement and Interpretation .....	5
124.01	Authorization .....	5
124.02	Stop Work Order.....	5
124.03	Interpretation.....	6
125.00	Liability.....	6
126.00	Violations.....	6
127.00	No Waiver of Legal Rights .....	6
128.00	Use of Elbert County Rights-of-Way (R.O.W.) or Dedicated Easements.....	6
128.01	Permission to Occupy R.O.W.....	6
128.02	Insurance and Indemnification.....	6
128.03	Performance Bond/Letter of Credit .....	7
128.04	Performance Warranty/Guarantee .....	7
129.00	Scope of Work .....	8
130.00	WORK CONDITIONS .....	8
130.01	Working Hours.....	8
130.02	Emergency Work .....	9
130.03	Final Cleanup.....	9
131.00	Control of Work.....	10
131.01	Authority of the DPW Director.....	10
131.02	Authority and Duties of the Elbert County Representative/Inspector .....	10
131.03	Suspension of Work.....	11
131.04	Removal of Unauthorized and Unacceptable Work .....	11
131.05	Contractor’s Responsibility, Character of Workers and Equipment .....	11
131.06	Situation Variances .....	12
131.07	Elbert County Capital Improvement Projects .....	12
131.08	Requirements of Other Jurisdictions.....	12
132.00	Control of Materials.....	12
132.01	Samples and Tests.....	12
132.02	Storage of Materials.....	13
132.03	Defective Materials.....	13
140.00	GENERAL CONDITIONS.....	13
141.00	Protection of Public, Private and Utility Interests .....	13
141.01	Operation of Existing Utility System Controls.....	13

141.02	Permits Required by Other Agencies.....	13
141.03	Public Convenience and Safety .....	13
141.04	Interruption of Services.....	14
141.05	Protection of Paved Surfaces .....	14
141.06	Protection of Streams, Lakes and Reservoirs .....	14
141.07	Protection of Public and Private Installations.....	15
141.08	Protection and Restoration of Property and Survey Monuments.....	16
141.09	Surveys.....	17
141.10	Survey Monuments .....	17
141.11	Dustproofing .....	18
141.12	Traffic Control, Barricades and Warning Signs .....	18
141.13	Use of Explosives .....	20
141.14	Storage of Explosives .....	21
142.00	Use of Elbert County / Metro District Water.....	21
143.00	Pavement Cuts .....	21
143.01	Pavement Cut Repair Requirements .....	22
144.00	Cable Installation .....	23
144.01	General.....	23
144.02	Underground Installation .....	23
144.03	Overhead Installation.....	23
150.00	PERMITS AND INSPECTIONS.....	23
151.00	Public/Private Improvement Permit (PIIP), Grading Permit and Over-Excavation Permit.....	23
151.01	Application for Permit .....	23
151.02	Permit Issuance .....	24
151.03	Permit Expiration.....	25
151.04	Permit Suspension or Revocation .....	25
152.00	Weekend, Holiday and After Hours Work Permit.....	25
153.00	Permit Fees.....	26
153.01	Plan Review Fees.....	26
153.02	Investigation Fee Required for Performing Work Without a Permit.....	26
154.00	Inspections .....	26
154.01	Additional Inspections and Reinspections.....	27
160.00	PLANS AND SPECIFICATIONS.....	28
161.00	Construction Plan Requirements.....	28
161.01	Construction Plan Submittal Requirements.....	29
161.02	General Requirements.....	29
161.03	Plan Details .....	31
161.04	Profile Details .....	32
161.05	Water Supply Construction Details .....	32
161.06	Sanitary Sewer Construction Details .....	33
161.07	Storm Drainage Construction Details .....	33
161.08	Street Construction Details .....	35
161.09	Area Grading Plan Details .....	35
161.10	Erosion Control Plan Details .....	36
161.11	Cut and Fill Plan .....	36

161.12 Easement Widths ..... 36  
161.13 Specifications and Support Documentation..... 36  
161.14 Irrigation and Landscape Specifications and Support Documentation..... 37  
161.15 Irrigation Construction Details ..... 38  
161.16 Landscape Details ..... 38  
162.00 Engineering Reports..... 38  
162.01 Preliminary Reports ..... 38  
162.02 Final Engineering Reports ..... 41  
170.00 DEFINITIONS AND ABBREVIATIONS ..... 49  
171.00 Definitions..... 49  
172.00 Abbreviations ..... 50  
173.00 Terms ..... 51  
174.00 Specifications by Reference..... 51

**SECTION 100  
TITLE, SCOPE AND GENERAL CONDITIONS**

**110.00 TITLE**

These regulations shall be known as the Elbert County Construction Standards & Specifications, 2019 Edition, and may be cited as such. They shall be referenced to herein as the CONSTRUCTION STANDARDS & SPECIFICATIONS.

110.01 Purpose

The purpose of these CONSTRUCTION STANDARDS & SPECIFICATIONS is to provide acceptable standards of design, construction, quality of materials, use, location, and maintenance of public and private infrastructure and common facilities including, but not limited to, water supply systems, sanitary sewer systems, storm drainage systems, roadways, landscaping, irrigation, open space, parking lots and appurtenances. In no way shall these CONSTRUCTION STANDARDS & SPECIFICATIONS supersede or replace any adopted County Resolution.

**120.00 SCOPE**

The provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS shall apply to the construction, enlargement, alteration, moving, removal, conversion, demolition, repair, and excavation of public and private improvements or common facilities specifically regulated herein except where an approved Planned Urban Development Plan (P.U.D.) or Final Plat specifically states otherwise. The provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS apply to Elbert County contracts, developer contracts and private contracts.

Alterations, additions, or repairs to existing improvements shall comply with all requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS unless specifically exempted by the / DPW Director or his designee.

120.01 Federal and State Laws

The Contractor shall comply with all current federal and state laws. The Contractor shall obtain all necessary permits as required by these CONSTRUCTION STANDARDS & SPECIFICATIONS prior to commencement of the work. The Contractor shall notify the DPW Director or his designee twenty-four (24) hours before the start of the work or when work shall be resumed following a delay.

120.02 Jurisdiction

These Construction Standards shall apply to all land within the unincorporated areas of the County, except where superseded by State of Colorado (Department of Transportation or Department of Public Health and Environment) jurisdiction.

**121.00 Alternate Materials and Methods of Construction**

The provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS are not intended to prevent the use of any material or method of construction not specifically prescribed by these procedures. Alternate materials or methods shall be submitted for approval by the DPW Director or his designee . Sufficient evidence or proof shall be submitted to substantiate the alternate. Details of alternate approval shall be recorded and made part of the project files.

**122.00 Modifications**

In individual situations, Elbert County may grant modifications. The specified procedure shall be demonstrated to be practical and that the modification conforms to the intent and purpose of the specified procedure. The requested modification shall not lessen any design requirement. The document(s) granting a modification shall be placed in the project files.

**123.00 Tests**

Whenever there is insufficient evidence of compliance with the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS or evidence that any material or construction does not conform to the requirements, the DPW Director or his designee require the Contractor to perform tests to demonstrate compliance. Test methods shall be as specified by the CONSTRUCTION STANDARDS & SPECIFICATIONS or by other recognized test standards. If there are no recognized and approved test methods for the proposed alternate, the DPW Director or his designee shall determine test procedures. All tests shall be made by an approved agency. Elbert County shall retain reports of such tests in accordance with the Elbert County Records Retention Policy.

**124.00 Organization, Enforcement and Interpretation**

## 124.01 Authorization

The DPW Director or his designee is authorized and directed to enforce all provisions of the CONSTRUCTION STANDARDS & SPECIFICATIONS, and for such purposes he shall have the powers of a peace officer. The DPW Director or his designee may appoint a civil engineer, construction Representative/Inspector, or other employee to act in his behalf.

## 124.02 Stop Work Order

If work is being done contrary to the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS, the DPW Director or his designee may issue a written order to stop the work. The written notice shall be served on any persons engaged in doing or causing the work to be done. Upon receipt of the stop work order, all work shall cease until authorized by the DPW Director or his designee to proceed.

## 124.03 Interpretation

These CONSTRUCTION STANDARDS & SPECIFICATIONS are composed of written engineering standards, materials specifications and detail drawings. The interpretation of any Section, or of any difference between Sections, when appropriate, shall be made by the DPW Director or his designee, and his interpretation shall be binding and controlling in its applications.

**125.00 Liability**

The DPW Director or his designee, or his authorized representative charged with the enforcement of these CONSTRUCTION STANDARDS & SPECIFICATIONS, acting in good faith and without malice in performing his duties, shall not be personally liable for any damage that may accrue to persons or property as a result of any act or by reason of any act or omission in the discharge of his duties.

**126.00 Violations**

It shall be unlawful for any person, firm, or corporation to construct, enlarge, alter, repair, move, improve, remove, excavate, convert, demolish or operate any public improvements or common facilities or permit the same to be done in violation of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

**127.00 No Waiver of Legal Rights**

Elbert County shall not be precluded or stopped by any measurement, estimate, or certificate made either before or after the completion and acceptance of the work from showing the true amount and character of the work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate or certificate is untrue or incorrectly made, or that the work or materials do not conform in fact to these CONSTRUCTION STANDARDS & SPECIFICATIONS.

**128.00 Use of Elbert County Rights-of-Way (R.O.W.) or Dedicated Easements.**

## 128.01 Permission to Occupy R.O.W.

All persons desiring to place facilities within the public R.O.W., if not otherwise granted by contract or written agreement, shall obtain permission from the BOCC and pay required fees in order to occupy an Elbert County R.O.W. or dedicated easement. For construction in the public R.O.W., refer to Section 151.00 Public/Private Improvement Permit (PIIP), Grading Permit, and Over-Excavation Permit of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

## 128.02 Insurance and Indemnification

Indemnification: The Applicant, for itself and its related entities, agents, employees, subcontractors, and the agents and employees of said subcontractors, shall hold Elbert County harmless, defend, and indemnify Elbert County, its successors, assigns, officers, employees, agents, and appointed and elected officials from and against all liability or damage and all claims or demands whatsoever in nature, and reimburse Elbert County for all its reasonable expenses, as incurred, arising out of the installation, maintenance, operation or any other Work or activity in the public right-of-way or by the Applicant related to its use thereof, including, but not limited to, the actions of the Applicant, its related entities, agents, employees, subcontractors, and the agents and employees of said subcontractors, or the securing of and the exercise by the Applicant of the Permit rights granted in the Permit, including any third party claims, administrative hearings, and litigation; whether or not any act or omission complained of is authorized, allowed, or prohibited by this ordinance or other applicable law.

#### 128.03 Performance Bond/Letter of Credit

Before any Permit required by this chapter shall be issued to an Applicant, the Applicant shall file with Elbert County a bond or letter of credit in favor of Elbert County in an amount equal to the total cost of restoration of all public and private infrastructure the Applicant may disturb to a condition equal to or better than that existing before the project began. The cost of restoration may include, without limitation, removal of defective materials, re-compaction of subgrade and base material, and construction of surface improvements, including labor and materials. The bond or letter of credit shall be executed by the Applicant as principal and by at least one surety upon whom service of process may be had in the state. The bond or letter of credit shall be conditioned upon the Applicant fully complying with all provisions of Elbert County ordinances, rules and regulations, and upon payment of all judgments and costs rendered against the Applicant for any material violation of Elbert County ordinances or state statutes that may be recovered against the Applicant by any person for damages arising out of any negligent or wrongful acts of the Applicant in the performance of Work done pursuant to the Permit. Elbert County may bring an action on the bond or letter of credit on its own behalf or on behalf of any person so aggrieved as beneficiary. The bond or letter of credit shall be approved by the Elbert County Attorney as to form and as to the responsibility of the surety thereon prior to the issuance of the Permit.

#### 128.04 Performance Warranty/Guarantee

Any warranty made hereunder shall serve as security for the performance of work necessary to repair the public R.O.W. if the Applicant fails to make the necessary repairs or to complete the work under the Permit.

The Applicant, by acceptance of the Permit, expressly warrants and guarantees complete performance of the work in a manner acceptable to Elbert County and warrants and guarantees all work done for the warranty period. Refer to Section 200.00

ACCEPTANCE PROCEDURES of these CONSTRUCTION STANDARDS & SPECIFICATIONS. The Applicant agrees to maintain and to make all necessary repairs during the warranty period. This warranty shall include all repairs and actions needed as a result of:

- A. Defects in workmanship
- B. Settling of fills or excavations
- C. Heaving or cracking
- D. Any unauthorized deviations from the approved plans and specifications
- E. Failure to barricade
- F. Failure to clean up during and after performance of the work and comply with B.M.C. 8-10-010 regarding control of construction materials and debris.
- G. Failure to replace pavement markings or otherwise comply with repaving or reconstruction Schedule.
- H. Any other violation of this chapter or the ordinances of Elbert County.

The warranty period shall begin on the date of Elbert County’s Construction Acceptance of the work. If repairs are required during the warranty period, those repairs shall also be warranted until the end of the warranty period starting with the date of Construction Acceptance. It is not necessary that a new warranty period be provided for warranty repairs.

At any time prior to completion of the warranty period, Elbert County may notify the Applicant of any needed repairs. Such repairs shall be completed within twenty-four (24) hours if the defects are determined by Elbert County to be an imminent danger to the public health, safety and welfare.

Should the Applicant fail to complete non-emergency warranty work in a timely manner, upon giving the Applicant ten calendar days written notice Elbert County may perform the work at the Applicant's expense. If the cost of the warranty work performed by Elbert County exceeds the amount of the financial security, the Applicant shall be liable for the additional costs. If there is a dispute as to the amount owed, the Applicant may provide financial security to Elbert County to fully secure such payment until resolution of any appeal under this chapter.

**129.00 Scope of Work**

**130.00 WORK CONDITIONS**

130.01 Working Hours

All work to be completed on the project shall be performed during regular working hours, 7:00 A.M. until 7:00 P.M. Monday through Friday. Restricted hours may be included



with conditions of the BOCC Resolution approving the project, or within the work permit.

The Contractor shall not perform overtime work outside of regular working hours or the performance of work on Saturday, Sunday or any Elbert County observed holiday without receiving written consent from the DPW Director or his designee. Request for work outside regular working hours shall be received two working days prior to the proposed date of the work. Refer to Section 150.00 PERMITS AND INSPECTIONS of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

At the discretion of the DPW Director or his designee, a formal or informal hearing before the BOCC may be conducted to assist in determining the appropriateness for permitting work outside of regular working hours. All costs of notification and hearing shall be borne by the proponent of or Applicant for the permit.

#### 130.02 Emergency Work

When, in the opinion of Elbert County, the Contractor has not taken sufficient precautions for the safety of the public or the protection of the work to be constructed, or of adjacent structures or property which may be injured by processes of construction on account of such neglect, and an emergency may arise and immediate action is considered necessary in order to protect public or private, personal or public interests, Elbert County, WITH OR WITHOUT NOTICE to the Contractor or the Developer, may provide suitable protection by causing such work to be done and material to be furnished and placed as Elbert County may consider necessary and adequate.

The cost and expense of such work and material so furnished shall be borne by the Contractor or developer and shall be paid upon presentation of the bills.

The performance of such emergency work under the direction of Elbert County shall in no way relieve the Contractor of responsibility for damages which may occur during or after such precaution has been taken.

In an emergency threatening loss of life or extensive damage to the work or to adjoining property, and where the Developer or Contractor is unable to obtain special instructions or authorization from Elbert County after diligent attempts to obtain such special instruction or authorization in sufficient time to take the necessary action, the Developer or Contractor is hereby permitted to act at his own discretion to prevent such threatening loss or damage.

#### 130.03 Final Cleanup

Upon completion of the work, the Contractor shall remove from the project area all surplus and discarded materials, rubbish, and temporary structures, and leave the project area in a neat and presentable condition. The Contractor shall restore all work that has

been damaged by his operations, to general conformity with the specifications for the item or items involved.

Final cleanup shall include inspection of the interior of all manholes, stormwater inlets and facilities within the construction limits for construction materials, dirt, stones, or other debris deposited therein by the activities of the Contractor, and removal of the debris.

### **131.00 Control of Work**

#### **131.01 Authority of the Department of Public Works / Road & Bridge Division**

The DPW Director or his designee has the authority to stop the work whenever such stoppage may be deemed necessary. The DPW Director or his designee has authority to resolve issues regarding the quality and acceptability of materials furnished, performance of the work, interpretation of the plans and specifications, and acceptable fulfillment of the requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

The DPW Director or his designee may define the schedule and/or priority of the work to be completed on the project. The Contractor shall comply with this schedule. Any revision to the schedule shall be authorized in writing by the DPW Director or his designee.

#### **131.02 Authority and Duties of the Elbert County Representative/Inspector**

The Elbert County Representative/Inspector is authorized to observe and inspect all work completed and all material furnished. Observations and inspections may include all procedures and the preparation, fabrication and manufacture of materials to be used. The Elbert County Representative/Inspector is not authorized to revoke, alter, or waive any requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS. The Elbert County Representative/Inspector is authorized to call the attention of the Contractor to any failure of the work or materials to conform to these CONSTRUCTION STANDARDS & SPECIFICATIONS. The Elbert County Representative/Inspector is also authorized to issue a "Correction Notice" when inspection of the project reveals violation(s) of these CONSTRUCTION STANDARDS & SPECIFICATIONS. The Elbert County Representative/Inspector shall have the authority to reject materials and procedures until any questions at issue can be resolved by the DPW Director or his designee.

The Elbert County Representative/Inspector shall not act as foreman or perform other duties for the Contractor, or interfere with the management of the work performed by the Contractor. Any "advice" which the Elbert County Representative/Inspector may give the Contractor shall not be construed as binding upon the DPW Director or his designee or Elbert County in any way or release the Contractor from fulfilling all of the requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS. The

presence or absence of the Elbert County Representative/Inspector shall not relieve the responsibility or the obligation of the Contractor.

Elbert County shall—at all times—have reasonable and safe access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection.

#### 131.03 Suspension of Work

In case of suspension of work for any reason, the Contractor shall take precautions as necessary to prevent damage to the project, to provide for adequate drainage and to install any necessary barricades, signs, or other facilities, at his expense, as directed by the DPW Director or his designee / and as required by these CONSTRUCTION STANDARDS & SPECIFICATIONS. Necessary precautions shall be taken before the Contractor leaves the job site.

#### 131.04 Removal of Unauthorized and Unacceptable Work

Work which does not conform to the approved plans and these CONSTRUCTION STANDARDS & SPECIFICATIONS or which results in an inferior or unsatisfactory product shall be considered unacceptable work.

Unacceptable work—whether the result of poor workmanship, poor design, use of defective materials, damage through carelessness, or any other cause—found to exist prior to Final Acceptance of the work shall be immediately removed and replaced or corrected at the expense of the Developer, in a manner acceptable to Elbert County. This expense includes the total and complete restoration of all disturbed surfaces to a condition acceptable to Elbert County.

#### 131.05 Contractor's Responsibility, Character of Workers and Equipment

Contractor shall employ resources for completing work to full completion in the manner and time required by the contract. All workers shall have skill and experience to perform the work assigned to them. When workers are primarily conversant in a language other than English, each crew shall have at least one person that is fluent in both English and the primary language of the workers.

Any person employed by the Contractor or by any subcontractor who does not perform the work in a proper and skillful manner shall, at the written request of the DPW Director or his designee /

, be removed by the Contractor or subcontractor and shall not be employed on the project without the approval of the DPW Director or his designee.

All equipment used on the project shall be of size and mechanical condition to meet requirements of the work and to produce a satisfactory quality of work. Equipment used shall not cause injury to the roadway, adjacent property, or other roadways.

**131.06**            Situation Variances

Where any particular requirements contained in this Section of these CONSTRUCTION STANDARDS & SPECIFICATIONS can be shown to be inappropriate when applied to an out-of-the-ordinary situation, variances to said minimum requirements shall be considered and may be authorized by the DPW Director or his designee / . The proposed variance in the requirements shall result in a level of safety, service, and quality equal to or greater than that intended by the application of said requirements. These CONSTRUCTION STANDARDS & SPECIFICATIONS shall govern when inconsistencies with approved construction plans occur, unless written permission is granted by the DPW Director or his designee.

**131.07**            Elbert County Capital Improvement Projects

It is recognized that the requirements contained in these CONSTRUCTION STANDARDS & SPECIFICATIONS are not necessarily sufficient for plans, specifications and contract administration purposes for Elbert County administered capital improvement projects. Accordingly, the DPW Director or his designee is authorized to develop and/or approve such additional requirements and procedures necessary for bidding, award, and construction administration for such projects. Said additional requirements and procedures shall be consistent with these CONSTRUCTION STANDARDS & SPECIFICATIONS and all applicable provisions of other Elbert County ordinances and resolutions.

**131.08**            Requirements of Other Jurisdictions

Where proposed street construction shall affect other agencies such as the CDOT, adjacent cities and counties or ditch companies, said construction shall be subject to the review of said agencies. Generally, where more than one requirement is imposed, the more restrictive requirement shall govern. Exceptions shall be authorized by the DPW Director or his designee in writing.

**132.00**            **Control of Materials****132.01**            Samples and Tests

To determine if materials comply with contract requirements and these CONSTRUCTION STANDARDS & SPECIFICATIONS, samples may be collected and/or tests performed at the source or job destination, at the discretion of the DPW Director or his designee. Collection of samples and completion of tests shall be in accordance with standard practices except where methods and procedures for sampling and testing materials are otherwise set forth in these CONSTRUCTION STANDARDS & SPECIFICATIONS.

The Contractor shall furnish—at his expense—all samples, tests and reports required by the DPW Director or his designee and shall provide such facilities for collecting and forwarding them. When requested by the DPW Director or his designee, a written statement providing the origin, composition and process of manufacture of a material shall be provided by the Contractor.

#### 132.02 Storage of Materials

Materials shall be stored so as to assure the preservation of quality and suitability for the work. Stored materials shall be subject to inspection at any time prior to use in the work and shall meet all requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS at the time they are used. Materials shall be stored in a manner that facilitates inspection. With the DPW Director or his designee's written approval, portions of the rights-of-way not required for public travel may be used to store materials and equipment. Any additional storage space required shall be provided by the Contractor at his expense.

#### 132.03 Defective Materials

Materials not in conformance with contract requirements or these CONSTRUCTION STANDARDS & SPECIFICATIONS shall be considered defective and shall be rejected. Rejected materials shall be removed from the work site within seventy-two (72) hours.

### 140.00 GENERAL CONDITIONS

#### 141.00 Protection of Public, Private and Utility Interests

##### 141.01 Operation of Existing Utility System Controls

##### 141.02 Permits Required by Other Agencies

Developers or Contractors proposing to place facilities in the vicinity of existing public, private or utility infrastructure shall obtain a written agreement from the responsible managing agency. This shall include, but not be limited to irrigation ditches, airports, railroads, the CDOT, communication utilities, gas and electric utilities, and neighboring governmental entities.

Refer to Section 630.00 EROSION CONTROL of these CONSTRUCTION STANDARDS & SPECIFICATIONS for NPDES permit requirements.

##### 141.03 Public Convenience and Safety

Fire hydrants shall be visible and accessible to the Fire District from the street at all times. No obstructions shall be placed within ten (10) feet of a fire hydrant.

Unless otherwise specified, the Contractor shall give written notice to the proper authorities in charge of streets, waterlines, gas lines, electric service, cable television and other conduits, railroads, poles, manholes, catch basins and all other property that may be affected by the Contractor's operations, at least seventy-two (72) hours before breaking ground. The Contractor shall not hinder or interfere with any person in the protection of such property, or the operation of utilities at any time. The Contractor shall obtain all necessary information—including field locations—in regard to existing utilities, shall protect such utilities from injury, and shall avoid unnecessary exposure of utilities that could cause injury to the public. The Contractor shall obtain all necessary information in regard to the planned installation of new utilities, cables, conduits and transformers. The Contractor shall make proper provisions and give proper notification so that new utilities and equipment can be installed without unnecessary inconvenience to the public.

**THE CONTRACTOR SHALL GIVE SUFFICIENT WRITTEN NOTICE TO PROPERTY OWNERS ADJACENT TO PROPOSED WORK.**

141.04 Interruption of Services

Before starting site work, the Contractor shall plan and coordinate for the disconnection or interruption of all services; such as water, sewer, cable T.V., telephone, gas, electric power and traffic. Disconnection and/or interruptions shall be made in accordance with the regulations of the utility that controls the supply of the service. Whenever the flow of traffic is affected, a Traffic Control Plan shall be provided in accordance with Section 141.12, Traffic Control, Barricades, and Warning Signs, of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

The local Metro District shall provide a representative to be on site to observe and approve the Contractor's disconnection or interruption of the water and sewer services. Twenty-four (24) hours prior to the interruption of service, the Contractor shall notify all users whose service shall be interrupted in order for them to make provisions for necessary water storage. No line in service shall be shut down for more than a four (4) hour period at one time.

141.05 Protection of Paved Surfaces

Only pneumatic-tired equipment shall be allowed to operate over paved surfaces. The Contractor shall be responsible for any damage to the street surface resulting from his operation.

141.06 Protection of Streams, Lakes and Reservoirs

The Developer or Contractor shall take all necessary precautions to prevent pollution of streams, lakes, and reservoirs with fuel, oil, bitumen, calcium chloride, or other harmful materials.

They shall conduct and schedule their operations to avoid or minimize siltation of streams, lakes and reservoirs. A plan for erosion protection shall be submitted to Elbert County for approval before starting work and shall conform to all local, state and federal regulations.

141.07 Protection of Public and Private Installations

The Contractor shall take proper precautions at all times for the protection of and replacement or restoration of driveway culverts, street intersection culverts or aprons, storm drains or inlets, fences, irrigation ditches, crossings and diversion boxes, mail boxes, shrubbery, flowers, ornamental trees, driveway approaches, and all other public and private installations that may be encountered during construction. The Contractor shall have the responsibility of providing each property with access to and from the property during the time of construction. Existing driveways shall be cut, filled, and graded as required and as directed by the DPW Director or his designee to provide permanent access. Existing driveways shall be resurfaced with the presently existing type of surfacing whenever the existing surface is destroyed.

141.07.01 Existing Structures, Trees and Utilities to Remain

Prior to any disturbance of soils, concrete or asphalt materials, all utility line locations shall be marked on the ground with location equipment by a certified utility location agency. All utility locations shall be plainly marked by coded paint symbols on pavement or by marked stakes in the ground at the Contractor's expense.

No tree located within Elbert County ROW shall be removed without written permission from the DPW Director or his designee. Circumstances warranting tree removal shall include, but not be limited to the following:

- A. Insufficient horizontal clearance between roadway and tree which may be a driving hazard and or inhibit sight distances;
- B. Dead or dying trees;
- C. Tree roots causing damage to roadways or other infrastructure;
- D. Trees inhibiting drainage and or roadside maintenance;
- E. Any circumstances which may create health, safety, and operational hazards related to tree location;
- F. Trees that need to be removed for roadway and or drainage improvements.

All existing poles, wires, fences, property line markers and other structures which, in the opinion of the DPW Director or his designee, shall be preserved in place without being temporarily or permanently relocated shall be carefully supported and protected from damage by the Contractor.

Underground utilities may exist within or immediately adjacent to areas of proposed construction. Where possible, locations of such utilities shall be

indicated on the approved plans. The completeness and accuracy of the utility locate information presented is unverified and without guarantee. Utility locate information is supplied to provide the Contractor with approximate locations of utilities in and near proposed construction areas to anticipate probable or possible obstructions and the extent to which construction may be affected.

**ALL UNDERGROUND UTILITY LOCATOR MARKINGS SHALL BE MARKED WITH WATER-BASED PAINT THAT DOES NOT LAST MORE THAN FORTY-FIVE (45) DAYS. IF AFTER FORTY-FIVE (45) DAYS THE MARKINGS REMAIN, THEY SHALL BE REMOVED BY THE CONTRACTOR.**

All utility services shall be supported by suitable means so that services do not fail during construction or if settling of soils occurs. Where any shallow pipe exists or is constructed which may have been distressed by the Contractor's construction operations, the DPW Director or his designee may require the Contractor to submit video of the pipe for inspection.

141.07.02 Relocation, Removal and Replacement of Existing Structures and Utilities

If the Contractor encounters structures and/or utilities, they shall be relocated or removed and replaced.

141.07.03 Correcting Damage

In the case of damage, repairs and/or replacements shall be made at the Contractor's expense. The Contractor shall notify the property owner of the type and extent of the damage. The Contractor and property owner shall agree to a time schedule to repair the damage, and if property owners do not wish to make the repairs themselves, the Contractor shall repair the damage. If damage is not repaired within the timeframe agreed to by the property owner and the Contractor, Elbert County may have repairs made at the Contractor's expense.

141.08 Protection and Restoration of Property and Survey Monuments

The Developer and Contractor shall use every reasonable precaution to prevent the damage or destruction of public or private property such as poles, trees, shrubbery, crops, fences, and survey monuments adjacent to or interfering with the work, and all overhead structures such as wires, cables, within or outside of the rights-of-way.

The Contractor shall protect and support all water, gas, sanitary sewer, storm sewer or electrical pipes or conduits, and all railway tracks, buildings, walls, fences or other properties that are liable to be damaged during the execution of his work. He shall take all reasonable and proper precautions to protect persons, animals, and vehicles from injury. Wherever necessary, or directed by the DPW Director or his designee, the



Contractor shall erect and maintain a fence or railing around any excavation or work site and place a sufficient number of amber lights about the work and keep them burning from twilight until sunrise. He shall employ one or more watchmen for additional security wherever they are needed or required by the DPW Director or his designee.

The Contractor shall not prevent the flow of water in the gutters of the street and shall use proper means to permit the flow of surface water along the gutters while the work is progressing.

The Contractor shall protect and carefully preserve all land boundary and Elbert County survey control monuments. Any monument that may be disturbed shall be referenced and replaced by a Colorado Registered Professional Land Surveyor. All monuments disturbed or removed by the Contractor, through negligence or carelessness on his part or on the part of his employees or subcontractors, shall be replaced at the Contractor's expense. Replacement of any monument shall be completed in accordance with the requirements set forth in Section 141.10 Survey Monuments of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

Developer and Contractor shall be responsible for the damage or destruction of property resulting from neglect, misconduct, or omission in his manner or method of execution or non-execution of the work or caused by defective work or the use of unsatisfactory materials. They shall restore such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or replacing it as may be directed, or they shall otherwise make good such damage or destruction in an acceptable manner. Developer and Contractor shall be responsible for the repair of underground pipes, wires, or conduits damaged by them or their subcontractors.

Developer and Contractor shall be liable for all damage caused by storms and fire, and shall under no circumstances, start fires without first securing the necessary permits and approval of the authority having jurisdiction even though they may be ordered or required to do such burning. In burning brush, stumps, or rubbish, care shall be taken not to damage any standing trees, shrubs or other property.

#### 141.09            Surveys

Surveys shall conform to Colorado Bylaws and Rules of Procedures and rules of Professional Conduct of the State Board of Registration for Professional Engineers and Profession Surveyors, latest edition.

#### 141.10            Survey Monuments

Permanent survey monuments, including the replacement of monuments, range points and lot pins shall be set in accordance with the requirements of Articles 51 and 53 of Title 38, Colorado Revised Statutes, and as required by the Bylaws and Rules of Procedure of the Colorado State Board of Registration for Professional Engineers and Professional Land Surveyors.

## 141.11 Dustproofing

The Contractor shall take all necessary steps to control dust arising from operations connected with the work. When ordered by the DPW Director or his designee, the Contractor shall dustproof the construction area by sprinkling with water, by constructing windrows, or as otherwise directed by the DPW Director or his designee.

## 141.12 Traffic Control, Barricades and Warning Signs

All construction, maintenance, park or utility work being completed within the Public Rights-of-way shall have a Traffic Control Plan (TCP) approved by the DPW Director or his designee. The TCP is a plan for guiding and handling traffic safely through the construction work zone. The TCP shall provide safe methods for movement of pedestrians, bicyclists, and motorists that travel through the work zone and a safe area for all workers engaged in the construction activity. The TCP shall show the location, spacing and scheduling of the usage of advance warning signs, barricades, pavement markings and other control devices. All control devices shall be installed and maintained in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD) and the "CDOT Work Zone Safety Handbook", latest editions.

Requirements contained in these manuals shall be strictly enforced during the progress of the work.

**THE TCP SHALL BE JOB SPECIFIC.** In order for a TCP to be approved by the DPW Director or his designee, it shall contain—as a minimum—a scaled drawing showing the project area and the street(s) that are affected by the project. The drawing shall include the following information:

- A. Location and spacing of properly planned traffic control devices.
- B. The length of time that the construction shall be in progress.
- C. The name and phone number(s) of the Contractor's designated traffic control supervisor.
- D. Any special notes or information on how the traffic control operation is to be handled.

The Contractor shall be responsible for the following:

- A. Obtain a Public/Private Improvement Permit (PIIP) from the Elbert County Department of Public Works Road & Bridge Division.
- B. Provide timely notification to, and coordination with, all affected agencies including the following:
  - 1. Appropriate Fire and Rescue
  - 2. Elbert County Sheriff Department
  - 3.

4. Elbert County Department of Public Works Road & Bridge Division
  5. Utility Companies
- C. Inform occupants of abutting properties of access limitations made necessary by the work.
  - D. Schedule and expedite the work to cause the least inconvenience to the public. Construction or repair work shall not be permitted at or in the vicinity of signalized intersections or on major streets and state highways without advance approval of the DPW Director or his designee and CDOT as applicable.
  - E. Furnish, install and maintain required traffic control devices and facilities, as required throughout the life of the contract, including periods when the work is not underway.
  - F. Provide flagmen when required.
  - G. Ensure that survey crews and other employees working in or adjacent to a traveled roadway wear personal protection equipment as required.
  - H. Provide adequate safeguards for workers and the general public.
  - I. Patrol the construction site as required to ensure that all devices are in place and operating at all times.
  - J. Remove traffic control devices when they are no longer needed.

Projects that affect traffic on arterial streets and/or connectors may require an off-duty police officer/Sheriff on the job site to direct traffic during peak hours of 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. Work shall be scheduled and expedited in a manner to cause the least inconvenience to the public.

Intersections and driveways shall be closed for a minimum amount of time. The Contractor shall coordinate driveway closures with property owners with final approval by the DPW Director or his designee.

No work is allowed on Holiday-Restricted Streets (major shopping routes) between November 1 and January 1 unless approved by the DPW Director or his designee.

Unless otherwise approved by Elbert County, construction operations are limited to one-half of the roadway at any time. Maintenance activities on arterial streets shall be planned and scheduled to minimize interference with traffic. Except for emergency situations, no maintenance work shall encroach into a moving lane of traffic between the hours of 7:00 to 9:00 AM or from 4:00 to 6:00 PM unless otherwise authorized by Elbert County. All temporary traffic lanes shall be a minimum of ten (10) feet in width unless otherwise authorized. In addition, lane clearance shall be a minimum of five (5) feet from an open excavation and two (2) feet from a curb or other vertical obstruction.

A suitable surface shall be provided for the temporary traffic lanes in work areas. When traffic is diverted from the existing pavement, a temporary surface shall be provided as required by the DPW Director or his designee.

Construction equipment not actively engaged in construction, employee vehicles and official vehicles of the agency shall not be parked in the vicinity of the work in such a manner as to further restrict traffic flow. Vehicles and equipment in continuous or frequent use may be operated or parked in the same traffic lane as the work obstruction. Construction spoils or materials may be similarly stored in this area or on the nearby roadway or sidewalk area, provided that four (4) feet of sidewalk is kept clear for pedestrian use. To prevent the spoil bank from occupying too great a space at its base, toe boards may be used to keep it two (2) feet from the edge of the excavation on one side and two (2) feet from the edge of the traffic lane on the other.

Whenever necessary, trenches and excavations shall be bridged to permit an unobstructed flow of traffic.

- A. Bridging shall be secured against displacement by using adjustable cleats, angles, bolts, or other devices.
- B. Bridging shall be installed to operate with minimum noise.
- C. The trench shall be adequately shored, to support the bridging and traffic.
- D. Steel plates used for bridging shall extend a minimum of one foot beyond the edges of the trench. Temporary paving materials shall be used to feather the edges of the plates to minimize wheel impact.
- E. Steel plates used for bridging shall be designed by a P.E.

When the work area encroaches upon a sidewalk, bike lane, walkway or crosswalk area, special consideration shall be given to pedestrian and bicyclist safety. Effort shall be made to separate pedestrians and bicyclists from the work area.

All work shall be barricaded at all times. Between sunset and sunrise, the work area shall be properly lighted. The Contractor shall be responsible for all damages to work due to failure of barricades, signs, lights, flagmen and watchmen.

#### 141.13 Use of Explosives

Detonation of explosives by Developers or Contractors shall only be by permit authorized by the BOCC after review and recommendation by the County Administrator.

The following information shall be submitted to the County Manager, or their designee, at least thirty (30) days prior to the detonation of explosives:

- A. A graphic plan showing locations of proposed explosive use and improvements (including structures, wells, waterways, irrigation ditches, etc.) on the property, surrounding land uses, and improvements on adjacent properties within a distance equal to 1000 feet plus the maximum distance of vibration as specified in the report described below.
- B. A geotechnical report prepared by Colorado Registered Professional Engineer describing the geology of the area and the impacts of explosive

use in the area, including wave attenuation and travel distance and potential impacts on improvements in the area.

- C. An analysis of alternatives to explosives, including safety, time, and monetary comparisons of all alternatives.

The Developer or Contractor shall use the utmost care to protect life and property in the detonation of explosives. Audible signals warning persons of danger shall be given before detonation of explosives.

If the detonation of explosives within Elbert County is permitted, the Developer or Contractor shall submit to the County Manager, or their designee, a certificate of insurance for coverage of detonation of explosives in the minimum following amounts: \$2,000,000 for property damage, each accident; and \$2,000,000 for public liability, bodily injury, single limit or equivalent, each accident. Elbert County shall be named as an additional insured on the insurance policy.

#### 141.14 Storage of Explosives

In addition to Elbert County requirements for use of explosives, the Developer or Contractor shall obtain a Fire District permit for the storage, handling and use of explosives.

#### 142.00 Use of Metro District Water

The Contractor may obtain permission to use Elbert County / Metro District water during construction as follows:

- A. Request the District representative to install a meter and appurtenances on a hydrant and agree to pay the appropriate fees and deposits.
- B. Agree to pay water utility charges for installation, use and removal of the meter, and to pay for all damage other than normal wear.
- C. Notify District Representative immediately when use of meter is no longer required.

#### 143.00 Pavement Cuts

**ALL UNDERGROUND UTILITY INSTALLATIONS CROSSING ARTERIALS OR STREETS CONSTRUCTED, RECONSTRUCTED, OR OVERLAID WITHIN FIVE (5) YEARS SHALL BE DONE BY BORING, EXCEPT FOR EMERGENCY REPAIRS.**

An exception may be granted when a plan is submitted to overlay the entire street (block to block), or as approved by the DPW Director or his designee.

All street cuts shall be saw-cut prior to street patching. An approved asphaltic patch, rotomilling, or base course trench surfacing shall be placed the same day street cuts are made, unless approved by the DPW Director or his designee. Cold mix, roto milling, or base course

shall be maintained free of surface ruts and the street shall be cleaned of mud and dust until the permanent resurface is in place. Pavement cuts shall have permanent patching within five (5) working days, unless otherwise approved by Elbert County.

**THE APPLICANT SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PERMANENT PATCH FOR A PERIOD OF ONE YEAR.**

If a street cut is required, the Contractor shall make every effort to install a permanent, hot mix, asphalt patch within twenty-four (24) hours. The Contractor shall place a temporary, cold mix, asphalt patch in all street cuts immediately after completing backfill and compaction if a permanent hot mix asphalt patch cannot be installed within twenty-four (24) hours of completion of utility installations. The Contractor shall submit a schedule for the permanent patch installation to the DPW Director or his designee for approval.

When pavement cuts are required, the following conditions shall be met so as to avoid interference with traffic:

- A. Pavement cuts in streets shall be open only between 9:00 A.M. and 4:00 P.M.; and
- B. Two-way traffic shall be maintained at all times around the construction area. A Traffic Control Plan (TCP) shall be prepared in accordance with Section 141.12 Traffic Control, Barricades and Warning Signs of these CONSTRUCTION STANDARDS & SPECIFICATIONS and submitted to the DPW Director or his designee / for approval prior to the start of construction.

143.01 Pavement Cut Repair Requirements

Pavement cut repairs shall be performed according to the following requirements:

- A. Areas to be repaired shall be saw cut so that edges are straight.
- B. Edges of areas to be repaired shall be milled a minimum of twelve (12) inches wide and two (2) inches deep.
- C. The excavated area shall be re-compacted to ninety-five (95) percent modified proctor as per ASTM-T-99 and edges cleaned prior to the application of tack coat. Tack coat shall be applied to the edges of the excavated area prior to placement of new material.
- D. Asphalt in the repair area shall be six (6) inches minimum thickness or one (1) inch thicker than existing asphalt, whichever is greater.
- E. Hot bituminous material shall be placed in the excavated area and compacted to a Rice density between ninety-two (92) and ninety-six (96) percent, or to a minimum Marshall density of ninety-five (95) percent.
- F. Finished patch shall be smooth and conform to the grade of the existing asphalt. Heat scarifications may be required by the DPW Director or his designee.
- G. Work area shall be cleaned at the end of each working day.

- H. Refer to the Detail Drawings for additional pavement cut repair requirements.

#### **144.00 Cable Installation**

##### 144.01 General

Unless otherwise approved in writing by the DPW Director or his designee, all cable installation shall be within public rights-of-way or within a dedicated utility easement. All cable shall be installed at a minimum depth of twenty-four (24) inches in accordance with the requirements of Article 300-5 of the NEC.

##### 144.02 Underground Installation

All underground installation shall be in accordance with Article 300-5 of the NEC.

##### 144.03 Overhead Installation

All overhead installation shall be in accordance with Article 230-24-(b) of the NEC.

### **150.00 PERMITS AND INSPECTIONS**

#### **151.00 Public/Private Improvement Permit (PPIP), Grading Permit and Over-Excavation Permit**

It shall be unlawful for any person, organization, firm or corporation to construct, enlarge, alter, repair, move, improve, remove, excavate, convert or demolish any public or private improvements or common facilities regulated by these CONSTRUCTION STANDARDS & SPECIFICATIONS without first obtaining either a Public/Private Improvement Permit (PPIP), a Grading Permit, or an Over-Excavation Permit for such work from the Department of Public Works.

##### 151.01 Application for Permit

All Elbert County construction related permits may be found online at Elbert County's website ([www.elbertcounty-co.gov](http://www.elbertcounty-co.gov)) or at the Department of Public Works Road & Bridge Division. Available permit applications include:

- A. Public/Private Improvement Permit
- B. Grading Permit
- C. Over-Excavation Permit
- D.
- E. Driveway Permit

An Applicant for a permit shall complete and submit an application online at Elbert County's website or on a form furnished by the Department of Public Works Road &

Bridge Division a minimum of five (5) working days prior to the anticipated starting date, except in case of emergency. Each application shall:

- A. Identify and describe the work to be covered by the permit for which the application is made.
- B. Describe the land on which the proposed work is to be done by legal description, street address, or similar description that shall readily identify and clearly locate the proposed work.
- C. Indicate the type of work or improvement intended.
- D. Be accompanied by plans, diagrams, computations and specifications, and other data as required in these CONSTRUCTION STANDARDS & SPECIFICATIONS.
- E. Be accompanied by a Traffic Control Plan as defined in these CONSTRUCTION STANDARDS & SPECIFICATIONS.
- F. State the valuation and the quantities of the work to be performed.
- G. Be signed by the Applicant or his authorized agent, who may be required to submit evidence to indicate such authority.
- H. Submit a starting and completion date.
- I. Provide other data and information as may be required by the DPW Director or his designee.
- J. If grading includes over-excavation and re-compaction for structures, comply with additional requirements of Section 162.01 Preliminary Reports and Section 162.02.05 Earthen Cut/Fill Investigation Report of these CONSTRUCTION STANDARDS & SPECIFICATIONS.
- K. Include all applicable fees. **CAPITAL IMPROVEMENT PROJECTS AND OTHER ELBERT COUNTY PROJECTS MAY BE EXEMPT FROM FEES BY ELBERT COUNTY, IF APPROVED BY THE DPW DIRECTOR OR HIS DESIGNEE /**

#### 151.02 Permit Issuance

The application, plans, specifications and other data filed by an Applicant for a permit shall be reviewed by the DPW Director or his designee. The plans may be reviewed by other Elbert County departments. If the DPW Director or his designee that the work described in an application for a permit, including plans and other data, conforms to the requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS, other pertinent laws and ordinances, and that all required fees have been paid, a permit may be issued.

Permitted plans shall have a signed DPW Director or his designee Statement. Refer to Section 161.02. General Requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS. The approved plans and specifications shall not be changed, modified, or altered without authorization from the DPW Director or his designee, and all work shall be performed in conformance with the approved plans. One set of approved plans, specifications, and computations shall be retained by Elbert County, and one set shall be maintained at the work site at all times during the progress of the work.



A pre-construction conference may be required prior to the issuance of any permits for construction. Attendance shall include the DPW Director or his designee, Elbert County Representatives / Inspectors, the Developer/Owner, Design Engineer, General Contractor, Sub-Contractors and others as appropriate. The DPW Director or his designee shall be notified two working days (forty-eight [48] hours) before construction is to begin.

The issuance of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS or of any regulations of this jurisdiction. No permit presuming to give authority to violate or cancel the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS is valid.

The issuance of a permit based on plans, specifications or other data shall not prevent the DPW Director or his designee from requiring the correction of errors in the plans, specifications and other data, or from stopping construction operations, which are in violation of these CONSTRUCTION STANDARDS & SPECIFICATIONS or any other regulations of this jurisdiction.

#### 151.03 Permit Expiration

Every permit issued by the DPW Director or his designee under the provisions of this section shall expire if the work authorized by the permit is not substantially complete by the date noted on the permit. Before the work can be recommenced, a new permit shall be obtained. If substantial changes have been made or required by Elbert County during this period, or more than one year has expired, the Applicant shall pay a new, full permit fee.

Any Applicant holding a valid permit may apply, in writing, for an extension of the completion date noted on the permit. The request shall be based on good cause and shall be acceptable to Elbert County. The DPW Director or his designee may extend the completion date for up to six months without an additional fee, provided that circumstances beyond the control of the Applicant have prevented completion of the work. No permit shall be extended more than one (1) time.

#### 151.04 Permit Suspension or Revocation

The DPW Director or his designee may suspend or revoke any permit issued under the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS. Suspension or revocation of a permit may occur when: (a) the permit is issued in error, (b) is based on incorrect information supplied by the Applicant, or (c) the permit has been issued in violation of any ordinance or regulation of any of the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS. No refund of permit fee shall be made for a revoked or a suspended permit.

#### 152.00 Weekend, Holiday and After-Hours Work

Weekend, holiday, or after-hours work shall only be permitted for construction which is specifically covered by an approved Public/Private Improvement Permit (PPIP), Grading Permit, Over-Excavation Permit, or in an emergency. Weekend and holiday work hours shall be from 8:00 A.M. to 5:00 P.M. only. **NO WORK SHALL BE PERMITTED WITHOUT THE SPECIFIC APPROVAL BY THE DPW DIRECTOR OR HIS DESIGNEE.** All applicable Elbert County Ordinances shall be strictly adhered to during the approved work period. All work shall comply with approved plans, contract documents, these CONSTRUCTION STANDARDS & SPECIFICATIONS and all other Elbert County requirements. No work shall be permitted without written approval by the DPW Director or his designee or the Construction Inspection Supervisor.

### **153.00 Permit Fees**

#### 153.01 Plan Review Fees

The permit fee shall be calculated from the latest permit fee schedule adopted by the Elbert County BOCC.

#### 153.02 Violation Fee Required for Performing Work Without a Permit

All work for which the required permit has not been obtained shall cease upon written notice of the DPW Director or his designee. Following the issuance of a Stop Work Order by the DPW Director or his designee, an investigation shall be made before a permit is issued for un-permitted work.

A violation fee shall be collected whether or not a permit is subsequently issued. The violation fee shall be equal to the amount of the permit fee. The minimum violation fee shall be the same as the minimum fee set forth in the permit application form. The payment of the violation fee shall not exempt any person from compliance with all other provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS nor from any penalty prescribed by law.

### **154.00 Inspections**

All construction work for which a PPIP, Grading Permit, Over-Excavation Permit or Driveway Permit is required shall be subject to inspection by the DPW Director or his designee or Elbert County Inspector/Representative, and certain types of construction shall have continuous inspection. All Metro District utilities to be inspected by an authorized Metro District representative.

It shall be the responsibility of the person performing the work authorized by a permit to notify the DPW Director or his designee or his authorized representative that such work is ready for inspection. Every request for inspection shall be filed at least forty-eight (48) hours before such inspection is desired unless otherwise stated in these CONSTRUCTION

STANDARDS & SPECIFICATIONS. An inspection request may be in writing or by telephone, at the option of the DPW Director or his designee.

It shall be the responsibility of the person requesting an inspection required by these CONSTRUCTION STANDARDS & SPECIFICATIONS to provide access to and means for proper inspection of all work. All work shall be inspected by the DPW Director or his designee. The DPW Director or his designee has the authority to halt construction when, in his opinion, these CONSTRUCTION STANDARDS & SPECIFICATIONS and/or standard construction practices are not being followed, or the work is otherwise defective. Whenever any portion of these CONSTRUCTION STANDARDS & SPECIFICATIONS are violated, the DPW Director or his designee shall give the Contractor written notice listing deficiencies to be corrected and may order further construction stopped until all deficiencies are corrected. If the deficiencies are not corrected within the time limit specified in the notice, the DPW Director or his designee may invoke enforcement options and/or draw upon performance guarantees under which the work is being performed.

**ELBERT COUNTY MAY EMPLOY PRIVATE CONTRACT CONSULTANTS AND OR INSPECTION PROFESSIONALS TO SUPPLEMENT ELBERT COUNTY PLAN REVIEW/ANALYSIS AND OR INSPECTIONS AT THE DEVELOPER'S COST.**

**ELBERT COUNTY MAY REQUIRE THE DEVELOPMENT TO HIRE A QUALIFIED PRIVATE CONTRACT INSPECTION PROFESSIONAL OR A COLORADO REGISTERED PROFESSIONAL ENGINEER AT THE DEVELOPER'S COST TO CERTIFY TO ELBERT COUNTY THAT THE WORK WAS COMPLETED IN ACCORDANCE WITH THESE CONSTRUCTION STANDARDS & SPECIFICATIONS.**

**LANDSCAPING THAT IS PRIVATELY OWNED AND MAINTAINED BY A HOMEOWNERS ASSOCIATION (HOA) OR OTHER PROPERTY MANAGEMENT ENTITY SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THESE CONSTRUCTION STANDARDS & SPECIFICATIONS. COMPLIANCE TO THESE CONSTRUCTION STANDARDS & SPECIFICATIONS SHALL BE CERTIFIED BY A QUALIFIED THIRD PARTY APPROVED BY ELBERT COUNTY AND PAID BY THE DEVELOPER.**

The procedure for final inspection and acceptance is specified in Section 200 Acceptance Procedures of these CONSTRUCTION STANDARDS & SPECIFICATIONS or in the contract documents.

154.01 Additional Inspections and Re-inspections

The DPW Director or his designee may make or require additional inspections of any work as deemed necessary to ascertain compliance with the provisions of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

A re-inspection fee may be assessed for each inspection or re-inspection when the work identified for additional inspection or re-inspection is not complete, or when identified corrections have not been made.

Re-inspection fees may be assessed when the permit is not in the possession of the permit holder at the work site, when the approved plans are not readily available to the Elbert County Representative/Inspector, for failure to provide access on the date for which inspection is requested, or for deviating from plans approved by the DPW Director or his designee.

The Applicant shall request a re-inspection in writing and shall pay the re-inspection fee. Where re-inspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid.

The intent of this subsection is not to require a re-inspection fee the first time a job is rejected for failure to comply with the requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS. The intent is to minimize the practice of requesting an inspection before a job is ready for an inspection or re-inspection.

## **160.00 PLANS AND SPECIFICATIONS**

Plans, engineering calculations, diagrams and other data shall be submitted in one or more sets, as required by the DPW Director or his designee, with each application for a permit. Elbert County shall require that plans, computations and specifications be prepared and designed by a Colorado Registered Professional Engineer. Landscape plans shall be prepared and designed by a landscape architect.

**ALL ROADWAY PLANS SHALL INCLUDE A GEOTECHNICAL REPORT.**

The preparation of the Record Documents, as required in Section 211.02 Record Documents of these CONSTRUCTION STANDARDS & SPECIFICATIONS, shall be based on field inspections performed under the direct supervision of the design engineer responsible for the original approved engineering construction drawings. Field inspection reports shall be submitted along with Record Documents.

If the design engineer responsible for the original approved engineering construction drawings is changed prior to preparing Record Documents, the replacement design engineer shall agree in writing to accept the responsibility for final approval and acceptance of the public improvements.

**EXCEPTION:** The DPW Director or his designee may waive the submission of plans, calculations, etc., if he finds that the nature of the work is such that a review of plans is not necessary to obtain compliance with these CONSTRUCTION STANDARDS & SPECIFICATIONS.

### **161.00 Construction Plan Requirements**

All construction plans shall be checked for conformance with the CONSTRUCTION STANDARDS & SPECIFICATIONS prior to approval by the DPW Director or his designee. This approval shall be for conformance to Elbert County design standards and other requirements. Engineering design shall remain the responsibility of the professional design engineer. One set (blueprint or photocopy) of the final plans shall be submitted to the Department of Public Works for review prior to approval. This set shall be returned marked with changes that are required or recommended. A GEOTECHNICAL REPORT IS REQUIRED FOR ALL PUBLIC ROADWAYS DESIGNS.

161.01 Construction Plan Submittal Requirements

Upon final approval by the DPW Director or his designee, submit the following:

- A. One set of the construction plans, unbound, 24" x 36" white paper with 22'x34' borders such that a scalable 11'x17' version can be reproduced, easily read font size, signed and sealed by a Colorado Registered Professional Engineer. Landscape and irrigation plans shall be sealed by either a licensed Landscape Architect or Professional Engineer. Each plan shall have the DPW Director Statement and signature line. See Section 161.02 General Requirements of these CONSTRUCTION STANDARDS & SPECIFICATIONS for the DPW Director Statement. Elbert County shall scan the plans into its "read-only" data file and shall retain the original. **The Developer or Engineer shall submit a second paper set (either 11" x 17" or 24" x 36"), signed and sealed by a Colorado Registered Professional Engineer, for signature by the DPW Director to be returned to the Developer.**
- B. An AutoCAD digital copy of the construction plans. Confirm version acceptability with Elbert County's GIS Division. "X-referenced" files shall be tied to Elbert County's GPS network system.

The Contractor shall keep a set of the signed approved plans on the job site for the duration of the project. Should circumstances warrant changes to the approved plans or specifications, written approval shall be obtained from the DPW Director. Copies of approved revisions shall be given to the Developer or Contractor and the design engineer. It shall be the duty of the design engineer and the Contractor to record all changes on the Record Documents as they occur. Record Documents shall be submitted at the completion of the project in compliance with Section 200.00 Acceptance Procedures of these CONSTRUCTION STANDARDS & SPECIFICATIONS.

161.02 General Requirements

Plans and specifications shall adhere to the following general requirements:

- A. Be developed for an 11" x 17" format.
- B. Have text with an easily read font size.
- C. Be drawn to scale.

- D. Have sufficient clarity to indicate the location, nature and extent of the work proposed.
- E. Provide sufficient detail to demonstrate conformance with the provisions of the CONSTRUCTION STANDARDS & SPECIFICATIONS and relevant laws, ordinances, rules and regulations.

The following items shall be shown on all plans:

- A. Title Block (lower right-hand corner preferred)
- B. Scale (For 11" x 17" drawings, 1" = 100' horizontal and 1" = 10' vertical for plans and profiles are preferred. These would be 1" = 50' and 1" = 5' respectively on a 22" x 34" format.)
- C. Date and revision
- D. Name of Professional Engineer or firm
- E. Professional Engineer's seal and signature
- F. Drawing number(s)
- G. DPW Director or designee Statement

Each set of construction plans shall include:

- A. Cover or title sheet that identifies the project, Developer and design professionals and date of the documents
- B. General Notes supplied by Elbert County and contained in this section. Additional project specific information may be provided as Supplemental Notes.
- C. Material lists identifying the type, size and quantity of materials to be installed
- D. Vicinity map with sufficient detail to locate the project
- E. Overall summary drawings at a reasonable scale (1" = 100' for example). The summary drawing(s) shall show all water, reuse water, sanitary sewer, storm drainage and street facilities to be completed, and other pertinent information that would add to the overall understanding of the project.

161.02.01 DPW Director or designee Statement

The following DPW Director Statement shall be placed on all types of drawings, including landscape and irrigation plans. The DPW Director Statement shall be located in the lower right-hand corner near the title block. Following is the DPW Director Statement:

"All work shall be constructed to ELBERT COUNTY CONSTRUCTION STANDARDS & SPECIFICATIONS. This drawing has been reviewed and found to be in general compliance with these CONSTRUCTION STANDARDS & SPECIFICATIONS and other Elbert County requirements.  
**THE ENGINEERING DESIGN AND CONCEPT**

**REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE APPEAR HEREON.”**

\_\_\_\_\_  
DPW Director or designee      Date

161.02.02      Landscape Maintenance Superintendent Statement

The following Landscape Maintenance Superintendent Statement shall be placed on all landscape and irrigation plans. The Landscape Maintenance Superintendent Statement shall be located below the DPW Director Statement. Following is the Landscape Maintenance Superintendent Engineer Statement:

“All work shall be constructed to ELBERT COUNTY CONSTRUCTION STANDARDS & SPECIFICATIONS. This drawing has been reviewed and found to be in general compliance with these CONSTRUCTION STANDARDS & SPECIFICATIONS and other Elbert County requirements. **THE DESIGN AND CONCEPT REMAINS THE RESPONSIBILITY OF THE PROFESSIONAL LANDSCAPE AND IRRIGATION SYSTEM DESIGNER WHOSE SIGNATURE APPEARS HEREON.”**

\_\_\_\_\_  
Landscape Maintenance Superintendent (or Designee)      Date

161.02.03      Variance Statement

Any proposed variance from these CONSTRUCTION STANDARDS & SPECIFICATIONS shall be submitted as a written request to the DPW Director or designee.

Following is the Variance Statement (if necessary):

The Applicant is requesting a variance from the Elbert County CONSTRUCTION STANDARDS & SPECIFICATIONS for the following:

- 1. (List all applicable items)

\_\_\_\_\_  
DPW Director or Designee      Date

161.03      Plan Details

- A. Vicinity map
- B. Key map / sheet index

- C. Legend containing all symbols used in the plans, usually located on a general or summary plan
- D. All proposed and existing buried infrastructure on a single plan. For areas where showing all proposed and existing infrastructure provides too much information to be readable at 1" = 50' scale, provide "blow-up" details with a reduced scale for clarity (1" = 20' or 1" = 10' for example).
- E. North arrow
- F. Property lines; indicate lots to be served by solid lines; other property lines dotted, all consistent with the project legend
- G. Ownership or subdivision information
- H. Street names and easements with width dimensions
- I. All other pertinent structures. Examples include, and are not limited to, houses, curbs, water courses, etc.
- J. Utility conflict areas
- K. Match lines
- L. References to detail sheets

161.04 Profile Details

- A. Vertical and horizontal grids with scales
- B. Ground surface existing (dotted) and proposed (solid)
- C. Existing utility lines where crossed, or in close proximity. The intent is to provide sufficient information to avoid conflicts with, and damage to existing utilities. Use "blow-up" details at a reduced scale for clarity
- D. Benchmarks. All elevations shall be referenced to one or more of Elbert County's Global Positioning System (GPS) Monuments.
- E. Existing manhole invert and rim elevations and identification number(s)
- F. Use "blow-up" details at reduced scale for clarity

161.05 Water Supply Construction Details

In addition to the above general plan and profile details, all water supply construction plans shall include the following items:

- A. Proposed water mains – general plan: Provide a summary table with all pipe sizes, material specification reference (i.e. AWWA C900, etc.), pressure class, and approximate quantity by size and pressure class.
- B. Proposed water mains – plan and profile:
  - 1. Diameter
  - 2. Length
  - 3. Materials and types of joints
  - 4. Location dimensions including existing or proposed
- C. Fittings:
  - 1. Tees
  - 2. Crosses
  - 3. Reducers



4. Bends
5. Plugs
6. Blow-offs
7. Air/vacuum valves
8. Restraints
- D. Valves, including existing
- E. Fire hydrant
- F. Plan, profile and complete details for off-site transmission mains, pump stations, special valves, and vaults, tanks, etc.
- G. Standard bedding detail (cross-section)
- H. Complete material list for each plan and profile drawing
- I. Sequence of construction

161.06 Sanitary Sewer Construction Details

In addition to the general plan and profile details, all sanitary sewer construction plans shall include the following:

- A. Proposed sanitary sewer mains – general plan: Provide a summary table with all pipe sizes, material specification references (i.e. ASTM C-76, etc.), strength class, and approximate quantity by size and strength class.
- B. Proposed sanitary sewer mains – plan and profile
  1. Diameters
  2. Materials
  3. Gradients
  4. Flow direction arrows
  5. Length between manholes
- C. Proposed manholes, cleanouts, and grease interceptors
  1. Stationing and other number designation
  2. Elevation of inverts in and out of manhole
  3. Elevation of manhole rim
- D. Location control dimensions
- E. Manhole stub-outs
- F. Proposed future extensions
- G. Proposed wye and riser connection for services
- H. Proposed service connections or stub-ins
- I. Standard bedding cross-section
- J. Proposed concrete encasement
- K. Proposed cut-off walls
- L. Complete material list for each plan and profile drawing
- M. Sequence of construction

161.07 Storm Drainage Construction Details

In addition to the above general plan and profile details, all storm drainage construction plans shall include the following:

- A. Proposed storm drainage – general plan: Provide a summary table with all pipe or conduit sizes, material specification reference (i.e. ASTM C-76), strength class, and approximate quantity by size and strength class.
- B. Drainage area plan; an overall plan of the area under study showing:
  - 1. North arrow
  - 2. Contours (maximum two-foot intervals)
  - 3. Location and elevation of County benchmarks
  - 4. Property lines
  - 5. Boundary lines (counties, districts, tributary area, etc.)
  - 6. Streets and street names and approximate grades
  - 7. Subdivision (name and location by section)
  - 8. Existing irrigation ditches, including ditch name(s) and ownership(s)
  - 9. Existing drainage ways including gutter flow directions
  - 10. Drainage sub-area boundaries
  - 11. Easements required
  - 12. Proposed curbs and gutters and gutter flow directions
  - 13. Proposed cross pans and flow directions
  - 14. Proposed piping and open drainage ways
  - 15. Flow calculations for 2-, 5-, and 100-year storm runoff
  - 16. Path of 100-year storm runoff flows
  - 17. Critical minimum finished floor elevations for protection from 100-year runoff
  - 18. Proposed inlet locations and inlet sizes
- C. Proposed pipes:
  - 1. Plan showing stationing and flow direction arrows
  - 2. Profile
  - 3. Hydraulic Grade Line
  - 4. Energy Grade Line
  - 5. Pipe diameter, length, material and strength class
  - 6. Grades
  - 7. Inlet and outlet details, including station number, structure designation, dimensions, and invert elevations
  - 8. Manhole details including station number, manhole designation, diameter or dimensions, and invert elevations
  - 9. Typical bedding detail
- D. Proposed open channels:
  - 1. Plan showing stationing
  - 2. Profile
  - 3. Grades
  - 4. Typical cross section(s) with major and minor storm event water surface elevations
  - 5. Lining details
  - 6. Water surface profile
  - 7. Energy grade line

- E. Proposed special structures (manholes, headwalls, open channel structures, trash gates, etc.):
  - 1. Plan
  - 2. Elevation
  - 3. Details of design and appurtenances

161.08 Street Construction Details

In addition to the above general plan and profile details, all street construction plans shall include the following:

- A. Key map (sheet index)
- B. Overlot grading plan
- C. Typical sections of street construction showing structure, dimensions and pavement design(s)
- D. Existing irrigation ditches to be removed or piped
- E. Proposed curb, gutter and sidewalk
- F. Proposed crosspans including flow direction
- G. Storm drainage facilities
- H. Location and elevation of Elbert County GPS Monument benchmarks.
- I. Horizontal curve data, with radii, tangents, points of curvature, (P.C.), intersection (P.I.) and tangency (P.T.)
- J. Stations and elevations of radius points (back of curb)
- K. Proposed profile of centerlines and flow lines of curb, and property line with horizontal stationing and percent slope
- L. Proposed edge drains, including depth, flow direction, discharge locations, cleanout locations, cross-section details
- M. Stations, lengths, and elevations of vertical curve P.C., P.I. and P.T.
- N. Percent slope of tangent lines
- O. Limits of construction
- P. Show sufficient existing or future construction to assure continuity of construction
- Q. Stations and elevations of drainage facilities and other structures
- R. Streetlight and underground service cable locations
- S. Street sign locations

161.09 Area Grading Plan Details

All construction plans shall include an Area Grading Plan that includes all pertinent information necessary to construct a structure on each lot. The Area Grading Plan shall follow the approved Drainage Plan. At a minimum, the following shall be included:

- A. Grading and drainage patterns of existing lots adjacent to subdivision
- B. Lot types (A, B, Transitional (T), Walkout (WO), Garden Level (GL), etc.)
- C. Lot corner elevations

- D. Building Envelopes
- E. Building top of foundation (T.O.F.) elevations
- F. Elevations of ground outside of building to ensure proper drainage away from the foundation
- G. Elevations and grades of all drainage swales and side lot lines
- H. Elevations of all high points
- I. Drainage easements on and adjacent to subject property

#### 161.10 Erosion Control Plan Details

All construction plans shall include an erosion control plan as specified in Section 630.00 Erosion Control of these CONSTRUCTION STANDARDS & SPECIFICATIONS. Erosion control plan drawings shall use the same base map as that for the Drainage Plan and shall include, at a minimum, the following information:

- A. A general location map with sufficient detail to identify drainage flow entering and leaving the development and general drainage patterns
- B. Major construction (i.e., development, irrigation ditches, existing detention facilities, culverts, storm sewers) along the path of drainage
- C. Basins and divides identified with topographic contours
- D. Specifications and details for erosion control measures
- E. A transition grading/drainage plan for construction activities that are phased or sequenced. All residential developments shall require a transition grading plan.

#### 161.11 Cut and Fill Plan

All subdivisions shall include a cut and fill plan. The cut and fill plan shall use the same base map as the grading plan. An Earthen Cut/Fill Investigation Report that complies with Section 162.00 Engineering Reports of these CONSTRUCTION STANDARDS & SPECIFICATIONS shall be submitted for any project with proposed cuts and/or fills greater than three (3) vertical feet. The plan shall include the following information:

- A. Limits of cut and fill
- B. Depths of cut and fill (spot locations)
- C. Depth to groundwater at monitoring locations
- D. Slopes (percent)

#### 161.12 Easement Widths

Water, sanitary sewer, and storm sewer easements shall be a minimum of thirty (30) feet in width for buried utility lines up to ten (10) feet deep. For utility lines deeper than ten (10) feet, the easement width shall be calculated according to the formula shown in the Detail Drawings.

#### 161.13 Specifications and Support Documentation

The following items shall also be included with submitted construction plans:

- A. Reference on plans to ELBERT COUNTY CONSTRUCTION STANDARDS & SPECIFICATIONS
- B. Reference on plans to other agency CONSTRUCTION STANDARDS & SPECIFICATIONS that are required or proposed
- C. Where reference to other commonly available CONSTRUCTION STANDARDS & SPECIFICATIONS shall not suffice, copies of specifications are to be provided
- D. Copies of written approval from other affected agencies as required
- E. Where work shall occur outside of the boundaries of the project (over lot grading, for example), copies of written approval from the adjoining private property owners shall be provided
- F. Soils and other test data and design calculations for street structural sections, drainage facilities and other appurtenances as required
- G. Digital copy of all reports, including graphics.

161.14 Irrigation and Landscape Specifications and Support Documentation

The following requirements apply for submitted irrigation and landscaping plans:

- A. Submit (2) sets of 24" x 36" and (1) set of 11" x 17" scaled plans.
- B. Include ownership/dedication, development responsibility and maintenance responsibility information for each tract and outlot (on the coversheet). Specify acreages.
- C. Include grading plans.
- D. Show property lines. Property lines for tracts and outlots to be maintained by Elbert County shall be staked, and the stakes shall be maintained by the Developer or Contractor until Construction Acceptance of the public irrigation and landscaping improvements.
- E. Show irrigation and landscaping to be maintained by Elbert County on separate plan sheets from irrigation and landscaping to be maintained by a private entity, such as a Homeowners Association (HOA) or a property management company. If irrigation and landscaping owned by Elbert County is to be maintained by a private entity, it shall be shown on the plans with red lines and text.
- F. Include a signature box on the coversheet for approval by the Landscape Superintendent or designee.
- G. Include mower access ramps for median islands.
- H. Provide engineering shop drawings for all park structures, including benches, trash cans, shelters, playgrounds, backstops etc.
- I. Specify playground surface(s).
- J. Denote sidewalk radii.
- K. Design sidewalks to be flared at intersections.

- L. Include all applicable Detail Drawings from these CONSTRUCTION STANDARDS & SPECIFICATIONS.

#### 161.15 Irrigation Construction Details

In addition to general plan and profile details, all irrigation construction plans shall include the following items:

- A. Bold line types for irrigation and lightened line types for landscaping
- B. Zone information, including clock letters; zone numbers; valve, head and nozzle specifications; the number of heads per zone and the precipitation rate in GPM/GPH per zone

If irrigation is not installed within one (1) year of the date plans are approved by Elbert County, the Developer or Contractor may be required to re-submit irrigation plans to Elbert County for approval.

#### 161.16 Landscape Details

In addition to the above general plan and profile details, all landscaping plans shall include the following items:

- A. Plant ledger
- B. Plant counts
- C. Sightline triangles based on street speed limits
- D. Existing streetlights, utility boxes, manholes and street signs
- E. Bold line types for landscaping and lightened line types for irrigation
- F. Delineated native areas and manicured areas
- G. Edger along bed areas adjacent to turf areas
- H. Mulch type (rock, cobble, wood mulch etc.)
- I. No small, angular areas of turf
- J. Drought tolerant bluegrass in passive parks and R.O.W.

### 162.00 Engineering Reports

All engineering reports shall include on the title page: (a) the type of report (preliminary or final); (b) the project name; (c) the preparer's name, date, and firm; and (d) P.E. seal of preparer.

Preliminary and final engineering reports shall be organized to follow the general outline of required topics presented in the following sections.

#### 162.01 Preliminary Reports

The following preliminary reports shall accompany all PUD and preliminary plat applications.

- A. Utility Report (2 copies)
- B. Drainage Report (2 copies)
- C. Traffic Analysis Report (3 copies)
- D. Geotechnical Studies (2 copies)
- E. Earthen Cut/Fill Investigation Report (2 copies)
- F. A digital copy, in Acrobat Portable Format (pdf), that is identical to the hardcopy of all above reports and graphics shall be submitted.

#### 162.01.01 Preliminary Utility Report Requirements

Preliminary utility reports shall include the following information and data as a minimum:

- A. Sanitary Sewer
  - 1. Layout and connection(s) to the sanitary sewer system
  - 2. Average and peak flow rate calculations
- B. Water System
  - 1. Layout and connection(s) to the water system
  - 2. Potable water demand peak and average rate calculations

#### 162.01.02 Preliminary Drainage Report

Drainage report calculations and supporting data required as set forth herein shall be prepared in accordance with the UDFCD Urban Storm Drainage Criteria Manual. A preliminary drainage report shall include as a minimum, the following:

- A. General Information:
  - 1. A map showing project location, description of the property, acreage, topography, identification of major drainageways involved, proposed type of development, access and maintenance responsibility, identification of wetlands and a reference to any flood hazard area delineation study and Drainage Outfall System Master Plan applicable to the site
  - 2. A map of the tributary drainage basin determining the location and magnitude of flows from upstream of the site based on current development or zoning, which ever provides the highest runoff volumes
  - 3. A conceptual drainage plan showing how intercepted and on-site flows shall be received and transported
  - 4. Designated points of discharge from the site, accompanied by a general analysis of how existing downstream facilities shall handle this discharge
  - 5. Required rights-of-way for drainage easements and detention areas

6. A discussion of how site characteristics (soils, vegetation, erodibility) shall influence both wind and water erosion
  7. A general discussion of the type of erosion control program necessary to prevent sediments from leaving the site
- B. Hydraulic Calculations:
1. Historic and proposed initial and major storm run-off quantities from the site under development. Evaluation of the historic drainage for the initial and major storm shall include:
    - a. Basin length, slope, time of concentration, intensity (show intensity duration curves used), and flow rates. The evaluation of proposed run-off quantities shall be based on the developer's plans for the site. An evaluation shall be performed for the same items listed for historic drainage to the extent that they are known or can be estimated.
  2. Storm Water Detention:
    - a. Storm water storage volume required
    - b. Location of storage areas. The storage areas shall be shown and designated. If the ultimate land use of a parcel is not known, the storage volume required shall be numerically written with a statement designating how the required storage is to be apportioned as parcels of property are sold off for the ultimate development.

#### 162.01.03 Preliminary Traffic Analysis Report

Required information for the preliminary traffic report shall include, but not be limited to the following:

- A. Land use, site and study area boundaries
- B. Existing and proposed site uses
- C. Existing and proposed roadways and intersections
- D. Existing and proposed roadways and intersection capacities and volumes
- E. Trip generation and design hour volumes
- F. Trip distribution
- G. Trip assignments
- H. Existing and projected traffic volumes
- I. Levels of service of all effected intersections for the design hour
- J. Future traffic impact analysis
- K. Short term horizon - one year after occupancy
- L. 20-year planning horizon (DRCOG 20-year planning horizon)

#### 162.01.04 Preliminary Geotechnical Report Requirements

Geotechnical and soils investigation studies are required for foundation design, pavement design, earthen cut/fill analysis, and over excavation and compaction for structures. These categories may be combined into one report when the



purpose of the investigation includes these facets of design. Each topic shall be presented as a “stand alone” chapter in the report. A preliminary geotechnical report shall include the following information at a minimum:

- A. General Information:
  - 1. Past and present land uses and features
  - 2. Proposed use of the land when developed
  - 3. Surface drainage characteristics
  - 4. A general geologic report on the area and a discussion of the soil profiles and subsurface features
  - 5. Potential areas of slope instability
- B. Unusual Land Uses and Conditions: Preliminary report shall identify all unusual land uses such as landfills, open dumps, wetlands, leach fields, areas of natural springs, faults, mines, etc. These shall be presented in a written and graphical format of suitable scale.
- C. Earthen Cut/Fill Investigation:
  - 1. Earthen Cut/Fill Analysis: Preliminary report shall identify grading of cuts and fills exceeding thicknesses of three (3) feet on the property. The report shall define depths to groundwater prior to and after proposed grading. The report shall also identify the soil types, their density or consolidation state, ditches, utilities, and structural and morphological features such as fractures, slip planes, deformations, and/or hummocky topography, which indicate previous or potential land sliding, and any other potential unique conditions that could cause instability.
  - 2. Over Excavation and Compaction for Structure Development: Preliminary report shall identify swell potential on the site and propose an established goal, method and procedure for minimizing and evaluating the risk to foundations, slabs on grade, and other flatwork in accordance with the foundations risk analysis required by the Uniform Building Code and as amended by the Elbert County.

#### 162.02 Final Engineering Reports

The following final reports shall accompany all site development plan and final plat applications:

- A. Utility Report (2 copies)
- B. Drainage Report (2 copies)
- C. Traffic Analysis Report (3 copies)
- D. Geotechnical Studies (2 copies)
- E. Earthen Cut/Fill Investigation Report (3 copies)
- F. Construction Traffic Routing Plan (2 copies)
- G. A digital copy, in Acrobat Portable Format (pdf), that is identical to the hardcopy of all above reports and graphics shall be submitted.

## 162.02.01 Final Utility Report

Final utility reports shall include the following information and data as a minimum:

- A. Sanitary Sewer
  - 1. Layout and connection(s) to the sanitary sewer system
  - 2. Average and peak flow calculations
  - 3. Maximum and minimum slope and velocity
  - 4. Available existing downstream capacity
  - 5. Master plan map (24" x 36" preferred), drawn to a standard engineering scale, showing existing and proposed facilities, as well as all pertinent geographic and infrastructure features for the area around, and including, the proposed development
- B. Water
  - 1. Layout and connection(s) to the potable water system
  - 2. Potable water demand (peak and average)
  - 3. Fire flow demand
  - 4. Peak instantaneous demand and meter sizing
  - 5. Available pressure and capacity
  - 6. Irrigation water demand. Note whether potable or reclaimed water is proposed for irrigation use. If connection to a reclaimed water system is proposed, provide a separate report containing all items listed for the potable system, except fire flow demand, regarding the use of a reclaimed water for irrigation. Include information demonstrating that the reclaimed water system has sufficient capacity to include the proposed use.
  - 7. Network model of system serving development in both written format and digital format. The digital model shall be integrated with the water model, and the written discussion shall detail the impacts to the existing system.
  - 8. Master plan map (24" x 36" preferred), drawn to a standard engineering scale, showing existing and proposed facilities, as well as all pertinent geographic and infrastructure features for the area, around and including the proposed development

## 162.02.02 Final Drainage Report

Drainage report calculations and supporting data required as set forth herein shall be prepared in accordance with the UDFCD Urban Storm Drainage Criteria Manual. A final drainage report shall include as a minimum, the following:

- A. Introduction:
  - 1. Site Location (include a map at a useable scale)
    - a. County, county, street grid

- b. Adjacent development
  - 2. Site Description
    - a. Acreage
    - b. Existing topography, ground cover, and use
    - c. A discussion of how site characteristics (soils, vegetation, erodibility) shall influence both wind and water erosion
  - 3. Existing drainage facilities, major channels, flood hazard zones, irrigation ditches, location of wetlands
  - 4. Proposed project description
  - 5. Flood hazard and drainage studies relevant to site
- B. Historic Drainage System:
  - 1. Major Basin:
    - a. Relationship to major basin channel
    - b. Major basin drainage characteristics, topography, runoff
  - 2. Sub-Basin and Site Drainage:
    - a. Initial and major storm
    - b. Offsite flows
    - c. Existing drainage patterns: (1) channelized or overland flow; (2) volumes; (3) points of discharge from site; (4) effect of historic flows upon adjacent properties
- C. Proposed (Developed) Drainage System:
  - 1. Criteria:
    - a. Size of basin and sub basin
    - b. Hydrologic method
    - c. Design storm frequencies (initial and major)
  - 2. Runoff:
    - a. Developed flow rates and paths
    - b. Erosion control methods for both high and low flow conditions
  - 3. Detention:
    - a. Volumes required and provided for major and minor storm events
    - b. Release rates and method of release for major and minor storm events
    - c. Excess storm water passage
    - d. Depths of ponding in parking areas
  - 4. Streets:
    - a. Depth and velocity of flow for initial and major storms.
    - b. Storm drainage system
  - 5. Open channel flow:
    - a. Type of channel (lining)
    - b. Maximum depth and velocity
    - c. Sediment control
    - d. Erosion control methods for both high and low flow conditions
  - 6. Storm sewers and culverts

- D. Rights-of-way Requirements:
  - 1. Boundaries
  - 2. Present and future ownership
  - 3. Access and responsibility for maintenance
  
- E. Analysis of Upstream and Downstream Effect:
  - 1. Include changes in flow depth, stream velocity, and erosion rates to the next parcel of property under separate ownership, both upstream and downstream. Similar analysis shall be pre-formed and reported for all parcel(s) between the subject property and a recognized channel capable of handling the flow from the site being analyzed.
  
- F. Conclusions:
  - 1. Discuss impact of proposed improvements. Discussion shall include benefits and adverse impacts with solutions to mitigate impacts.
  - 2. Compliance with FEMA regulations for areas in the flood hazard zone.
  
- G. Detailed Calculations (Appendices):
  - 1. Runoff (historic and developed)
    - a. Separate time of concentration (Tc) for each design point (Rational Method)
    - b. Runoff coefficient or permeability coefficient
    - c. Existing drainage facilities carrying flows-shall include flow for entire tributary area for each design point
    - d. Irrigation ditch flows
  - 2. Detention:
    - a. Storage Volumes required and provided
    - b. Peak inflow to detention ponds for initial and major storms
    - c. Peak discharge from detention pond based on outlet structure design for initial and major storms
    - d. Outlet structure type/design
    - e. Head at entrance
    - f. Emergency overflow release design
  - 3. Streets (refer to Section 6 of the Streets Chapter of the *Urban Drainage Criteria Manual*):
    - a. Depth and velocity of flow for both initial and major storm.
    - b. Inlet capacities and depths at inlets
  - 4. Open Channel Flow:
    - a. Roughness coefficient
    - b. Trickle channel
    - c. Depth and velocity for initial and major storms
    - d. Channel protection
    - e. Minimum freeboard
    - f. Hydraulic grade line
  - 5. Hydraulic Structures (pipes, culverts, inlets, etc.):

- a. Culvert capacity using standard nomographs
- b. Storm sewer capacity at each design section
- c. Inlet capacity
- d. Flow depth or headwater depth at inlet
- e. Drops
- f. Weirs
- g. Streets, gutters, and crosspans

162.02.03 Final Traffic Analysis Report

The final traffic analysis report shall include, but not be limited to the following:

- A. Site location and study area boundaries
- B. Existing and proposed site uses
- C. Existing and proposed roadways and intersections
- D. Existing and proposed roadways and intersection laneage, capacities and volumes
- E. Trip generation and design hour volumes
- F. Trip distribution
- G. Trip assignments
- H. Existing and projected traffic volumes
- I. Critical lane capacity analysis, where required
- J. Traffic signal analysis including warrant analysis and progression analysis with existing and proposed signal locations
- K. Levels of service of effected intersections for the design hour
- L. Traffic accident investigations of existing conditions and what effect proposed development shall have
- M. Parking lot analysis and traffic circulation analysis, if necessary, in commercial and industrial areas
- N. Future traffic impact analysis:
  1. Short term horizon - one year after occupancy
  2. 20-year planning horizon
- O. Traffic signage and striping plan
- P. Compliance/deviations from Elbert County's most current transportation master plan
- Q. Sight obstructions, visibility and line of site analyses
- R. Master plan map (24" x 36" size preferred), drawn to a standard engineering scale, showing existing and proposed facilities, as well as all pertinent geographic and infrastructure features for the area around, and including, the proposed development

162.02.04 Final Geotechnical Report

Geotechnical and soils investigation studies are required for foundation design, pavement design, earthen cut/fill analysis, and over-excavation and compaction for structures. These categories may be combined into one report when the

purpose of the investigation includes these facets of design. Each topic shall be presented as a “stand alone” chapter in the report. A subsurface investigation for foundation and/or roadway design shall include the following information and data as a minimum:

- A. General Information:
  - 1. Past and present land uses and features
  - 2. Proposed use of the land when developed
  - 3. Structure type
  - 4. Historic characteristics of groundwater for the area
  - 5. Surface drainage characteristics
  - 6. A general geologic report on the area and a discussion of the soil profiles, subsurface features and bedrock characteristics
  - 7. Potential slope instability based on proposed cuts and fills. Quantify the potential settlement to structures, roads, utilities and other improvements in fill areas and discuss proposed mitigation techniques.
- B. Investigation Details:
  - 1. Type of equipment used in obtaining data
  - 2. Date of drilling
  - 3. Boring logs which show: (1) the elevation of the existing ground; (2) the elevation of the top of each soil stratum encountered and the soil classification of each stratum encountered; (3) the water level at the time of boring and the level at a later date; and (4) standard penetration test results for each soil stratum. Each hole shall be referenced to a fixed benchmark.
  - 4. A sketch of the tested area accurately showing the locations of the borings
- C. Site Conditions/Foundation Design:
  - 1. Specific information including swell potential of the soil and the effect on foundations
  - 2. Recommendations regarding foundation types and any special procedures that may pertain to construction
  - 3. The effect of ground water on construction and methods to deal with any problems that may exist
  - 4. Recommendations regarding allowable soil bearing pressures and unconfined shearing strength
  - 5. Methods of prevention of swell and shrinkage of expansive soils and minimizing their effect on structures
  - 6. Recommendations regarding pavement design, including pavement thickness, subgrade stabilization, locations for edge drains and twenty (20) year design life criteria
  - 7. Natural moisture content of the soil strata
  - 8. Specifications for any unusual or special construction materials required
- D. Unusual Land Uses/Conditions:

1. Identify all unusual land uses such as landfills, open dumps, wetlands, leach fields, areas of natural springs, faults, mines, etc. These shall be presented in a written and graphical format of suitable scale.

162.02.05 Earthen Cut/Fill Investigation Report

The following information shall be included in the Earthen Cut/Fill Investigation Report for any proposed vertical elevation change greater than three (3) feet.

- A. Existing topographic information
- B. Existing groundwater depths, one soil boring in any area requiring a cut of 5,000 cubic yards or greater
- C. Ditches, utilities, structural and morphological features such as fractures, slip planes, deformations, and/or hummocky topography that indicate previous or potential land sliding, and any other potential unique conditions that could cause instability
- D. Proposed topographic information map identifying cut and fill areas with color identification at three-foot increments
- E. Proposed goals/reasons to modify existing topographic conditions.
- F. Design and construction procedure and design for earthen cut and fill areas shall include at a minimum:
  1. Full-time geotechnical engineering observation and testing
  2. Clearing the job site of all surface material including trees, brush, and rubbish prior to work
  3. Scarifying any area to be filled eliminating any opportunity for the excavated surface either to become a weak slip plane for ground displacements, or to obscure fractures, slip planes and any other structural features that could cause instability
  4. Soil benching limits and methods in fill areas to eliminate any potential for the development of instability along actual or potential slip planes in excessively steep slopes
  5. Surface and subsurface water routing to eliminate potential saturation of material in any cut or fill areas
  6. Compaction requirements in fill areas identifying material types, moisture requirements, maximum fill layer thicknesses prior to compaction, and compaction requirements
  7. Material requirements for placement of fill, if soil needs to be graded and stockpiled for use in specific areas
  8. Moisture content and density criteria for the specific materials and loading conditions associated with fills beneath foundation footings, basements, floor slabs, and near surface flatwork
  9. Compaction equipment including recommendation for types of equipment and procedure for use on the site

10. Testing requirements including frequency. Moisture content and density testing shall be done at varying depths in fill areas to assure proposed construction methods are successful
  11. Seasonal limitations on placement of fill material
  12. Summary report of the above information bound and submitted to Elbert County at the completion of the work. The summary report shall include an as-built “area grading plan” at a useable scale that shows cut areas, fill areas, cut and fill elevations, both surface and buried cut and fill slopes, and other site-specific information as required.
- G. Construction procedure for over-excavation and recompaction for structures shall include the following at a minimum:
1. Report detailing the goal and desired outcome of the work
  2. Excavation shall extend at least twenty (20) feet on all sides outside of proposed building envelope to protect structure and future concrete flat work
  3. Guidelines for work including items suggested and required in item “F.” above.
  4. Slab on grade risk analysis prior to the earthen cut and fill on 30 percent of the lots broadcast over the work area
  5. Slab on grade risk analysis following over-excavation and recompaction for structure lots as required by the Uniform Building Code and as amended by Elbert County
  6. Summary report which includes:
    - a. Project goal
    - b. Prior to over-excavation and recompaction, slab on grade risk analysis
    - c. Project guidelines and testing results
    - d. Following over-excavation and recompaction, slab on grade risk analysis
    - e. Summary table comparing slab on grade risk analyses before and following over-excavation and recompaction.
    - f. Certification by Project Geotechnical Engineer that: (1) earthen cut/fill requirements were followed; (2) all requirements have been met; and (3) any lots which may be allowed to have slabs on grade have been identified
  7. Procedures for structure construction to ensure that material removed from an over-excavation and recompaction area for foundation construction is replaced to the requirements for item “G.” above, and a checklist is developed and certified by the builder prior to issuance of the certificate of occupancy that material around the foundation has been replaced to the requirements for item “G.” above
  8. The builder shall create a monitoring program for a minimum of ten (10) percent of the structures on the site. The monitoring program shall, at a minimum, measure slab to beam movement and



provide visual inspection of flat work during the builder warranty period for the structure. The details and data of the monitoring program shall be available upon request.

162.02.06 Construction Traffic Routing Plan

Construction traffic within Elbert County shall proceed over a truck route or on such routes as are designated by the BOCC at the time the development is approved. A construction traffic routing plan shall be provided along with the Final Engineering Reports at the time approval for the development is sought.

## 170.00 DEFINITIONS AND ABBREVIATIONS

### 171.00 Definitions

Whenever the following terms are used in these CONSTRUCTION STANDARDS & SPECIFICATIONS, they shall be defined as follows:

- A. Approved by Elbert County - Shall mean approved by the DPW Director or designee
- B. Bonds - Performance, labor or material payment bonds, irrevocable letters of credit and other instruments of security furnished by the developer or Contractor and his surety in accordance with the Subdivision Agreements or other Agreements with Elbert County.
- C. Elbert County - Elbert County acting through the DPW Director or designee.
- D. Common Facilities - Facilities serving or held in common title by the owners or occupants of two or more dwelling units or commercial or industrial enterprises and covered by these CONSTRUCTION STANDARDS & SPECIFICATIONS.
- E. Contractor - A person that undertakes to construct, alter, move, demolish, repair, replace, excavate or add to any public or private improvements or common facilities covered by these CONSTRUCTION STANDARDS & SPECIFICATIONS.
- F. Days - Calendar days unless otherwise specified.
- G. Developer - The person or persons legally responsible to Elbert County for construction of improvements. For Capital Improvement Projects, Elbert County is the Developer.
- H. Engineer - The DPW Director or designee
- I. Equipment - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and tools and apparatus necessary for the proper construction and acceptable completion of the work.
- J. gpcd - Gallons per capita per day
- K. gpm - Gallons per minute
- L. GRC - Galvanized rigid conduit.

- M. Inspector - The authorized representative of the Engineer assigned to make detailed inspections of construction work to assure compliance with these CONSTRUCTION STANDARDS & SPECIFICATIONS and the plans as approved by Elbert County.
- N. MGD - Million gallons per day
- O. Plans - Profiles, cross sections, and drawings, and supplemental drawings, approved by Elbert County, which show the locations, character, dimensions or details of the work.
- P. psi - Pounds per square inch
- Q. Public Improvements - Improvements under the ownership or control of Elbert County including but not limited to the components of the water system, sewer system, street system, park system, and storm drainage system covered by these CONSTRUCTION STANDARDS & SPECIFICATIONS. The term also includes similar improvements being built in connection with a subdivision, which are intended to be dedicated to Elbert County.
- R. PVC (Polyvinyl Chloride) - A strong, tough plastic based on resins made by the polymerization of vinyl chloride or copolymerization of vinyl chloride with minor amounts (not over 50%) of other unsaturated compounds, which are fashioned into sheets, tubing, pipe, conduit, containers, insulation, etc.
- S. Work Hours - Seven (7) A.M. until seven (7) P.M. of the same day, Monday through Friday.
- T. Special provisions - Special directions, provisions or requirements peculiar to the project and not otherwise detailed or set forth in the specification.
- U. CONSTRUCTION STANDARDS & SPECIFICATIONS - The body of directions, provisions, and requirements contained herein, describing the method or manner of construction and the qualities and quantities of the materials and work to be furnished.
- V. Substantial Completion - That date, as determined by the DPW Director or designee, when the construction project or a specified part thereof is sufficiently completed, in accordance with these CONSTRUCTION STANDARDS & SPECIFICATIONS, so that the project or a specified part can be utilized for the purposes for which it is intended.
- W. Supplier - An individual, firm or corporation having a direct contract with a developer or Contractor or with any subcontractor for the manufacture or furnishing of any part of the supplies and/or materials to be used at or incorporated in, work at the site.

#### 172.00 Abbreviations

- A. AASHTO - American Association of State Highway and Transportation Officials.
- B. ACI - American Concrete Institute
- C. AISC - American Institute of Steel Construction

- D. ANSI - American National Standards Institute
- E. APWA - American Public Works Association
- F. ASA - American Standards Association
- G. ASTM - American Society for Testing and Materials
- H. AWG - American Wire Gauge
- I. AWWA - American Water Works Association
- J. BPR - Bureau of Public Roads
- K. CDOT - Colorado Department of Transportation
- L. DPW - Department of Public Works
- M. FCC - Federal Communications Commission
- N. IMSA - International Municipal Signal Association
- O. IPCEA - Insulated Power Cable Engineers Association
- P. ITE - Institute of Transportation Engineers
- Q. NEC - National Electrical Code as approved by the American Standards Assoc.
- R. NEMA - National Electrical Manufacturers Association
- S. NFPA - National Fire Protection Association
- T. UBC - Uniform Building Code
- U. UDFCD - Urban Drainage and Flood Control District
- V. UPC - Uniform Plumbing Code
- W. UL - Underwriters Laboratories, Inc.
- X. USDA - United States Department of Agriculture

### **173.00 Terms**

Whenever, in these CONSTRUCTION STANDARDS & SPECIFICATIONS, the words “as ordered”, “as directed”, “as required”, “as permitted”, “as allowed”, or words or phrases of like import are used, it shall be understood that the order, direction, requirement, permission, or allowance of Elbert County is intended. Similarly, the words “approved”, “reasonable”, “suitable”, “acceptable”, “approved”, “properly”, “satisfactory”, or words of like effect and import, unless otherwise specified herein, shall mean approved, reasonable, suitable, acceptable, approved, proper, or satisfactory in the judgment of Elbert County. Whenever, in these CONSTRUCTION STANDARDS & SPECIFICATIONS, the words (“DPW Director or designee”) are used, it shall be understood that Elbert County employee named therein shall be whoever is designated by the County Manager or whoever may be the authorized designee of the (“DPW Director”).

### **174.00 Specifications by Reference**

All specifications, i.e., ASTM, ACI, etc. made a portion of these CONSTRUCTION STANDARDS & SPECIFICATIONS by reference shall be the latest edition or as approved by the Elbert County BOCC.

Throughout these CONSTRUCTION STANDARDS & SPECIFICATIONS, any section referenced shall be deemed to include all sub-sections of that section. Any portion of these

CONSTRUCTION STANDARDS & SPECIFICATIONS that may be applicable to any other section, whether referenced or not, shall apply.