



# **DESIGN STANDARDS**

**ENGINEERING DIVISION  
33 EAST BROADWAY AVENUE, SUITE 200  
MERIDIAN, ID 83642  
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## OVERVIEW

### **PURPOSE**

The purpose of this document is to provide the development community in the City of Meridian with information, process and standards for design of City infrastructure for both public and private development within the city limits. Design guidance is provided in order to maintain standards and best practices in accordance with the City of Meridian’s ordinances, policies, practices, specifications and standards.

### **SCOPE**

This document provides minimum design standards and guidelines for development-related infrastructure. *Standards* are required provisions, and are identified with language such as “shall”, “must”, and “required” or “prohibited”. *Guidelines* are voluntary provisions identified with language such as “should”, “recommended”, or “encouraged”. These standards and guidelines are intended to supplement other applicable regulatory agency standards.

These design standards and guidelines address the following elements for new development:

- General Requirements applicable to all projects (Sections 1 through 3)
- Utilities
  - Domestic Water Supply System (Section 4)
  - Sanitary Sewer System (Section 5)
  - Pressure and Gravity Irrigation (Section 8)
  - Class A Recycled Water System (Section 9)
- Site Design
  - Street Lighting (Section 6)
  - Grading & Drainage (Section 7)
  - Streetscapes (Section 10)
  - Landscaping (Section 11)
  - Waterways and Floodplains (Section 12)

This document is intended to be used in the development of plans and specifications, in conjunction with the Idaho Standards for Public Works Construction (ISPWC), the latest edition of the Meridian Supplemental Specifications to the ISPWC, and other applicable standards identified in this document for the various elements. Any review by the City of Meridian is for the purpose of ensuring general conformance to standard practices, and does not constitute an engineering review of project plans and calculations or certification of compliance for work installed. The submitting design professional is solely responsible for the design and work installed.

**-END OF SECTION-**

## SECTION 1

When the following terms or titles are used in these Standards or in any document or instrument where these Standards govern, the intent and meaning shall be as herein defined below.

### 1-1    **DEFINITIONS:**

**Best Management Practices (BMP's)** – Shall mean schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States.

**City Engineer** – Shall mean the Engineering Manager/City Engineer of the City of Meridian Public Works Department or his/her designee.

**City Specifications** – Shall mean the latest edition of the City of Meridian Supplemental Specifications to the Idaho Standards for Public Works Construction (ISPWC).

**Construction Division** – Shall mean the inspection services workgroup of the City of Meridian Public Works Department.

**Consulting Engineer** – Shall mean any person, firm, partnership or corporation legally authorized to practice engineering in the State of Idaho who prepares land development/improvement plans and specifications for work within the City of Meridian.

**City of Meridian Standards** – City Standards include this document, City Ordinances, the UDC and other documents used to establish standards for the City of Meridian.

**Design Professional** – Any individual that is legally authorized / licensed to conduct work and prepare plans or reports related to their area of expertise.

**Developer** – Shall mean any person, firm, partnership, corporation or combination thereof, principally responsible for a land development/improvement project.

**Development** – Shall mean any act or process that changes the use or purpose of a parcel such as land grading, utility installation, street or building construction.

**Civil Engineering Plans Examiner** – Shall mean Development Services personnel responsible for plan review.

**Development Services** – Shall mean the Land Development Section of the Community Development Department of the City of Meridian.

**Downtown Meridian Redevelopment Area** – Shall mean the area bounded by East 3<sup>rd</sup> Street, East Ada Avenue, North Meridian Road, and East Fairview Avenue.

**Drinking Water Act** – Shall mean the 1974 Environmental Protection Agency Drinking Water Act, (42 U.S.C. 300f-300j-9) plus amendments.

**Engineering or Engineering Division**– Shall mean the Engineering Division of the City of Meridian Public Works Department.

**MCC** – Meridian City Code

**Project Inspector** – Shall mean the Public Works Inspector of the City of Meridian assigned to the project or his/her designee.

**Recycled Water** – Refers to Class A reclaimed / recycled water that is provided by the City of Meridian.

**Single Point** – The secondary irrigation system connection from the City’s domestic water system for shoulder season use (see MCC 9-1-28 Section C-1).

**State Standards** – Shall mean the latest edition of the Idaho Standards for Public Works Construction (ISPWC) and the Idaho State Standards governing water, wastewater and recycled water systems.

**Streetscape** – In the city core (see drawing 10-A in section 10), that portion of the right-of-way adjacent to the roadway, between the back of curb and face of building.

**Waters of the United States** – Shall mean any waters defined by Title 40 of the Code of Federal Regulations, Part 230.3 (s).

**-END OF SECTION-**

## SECTION 2 GENERAL DESIGN REQUIREMENTS

### 2-1 SECTION SUMMARY:

This section contains general guidance and requirements for the steps involved in starting a construction project and continuing all the way through to completion.

### 2-2 APPLICABLE STANDARDS:

The current requirements of the following agencies and/or codes shall apply to general design requirements. Conflicts between these requirements and the agencies and documents listed below shall be resolved on a case-by-case basis.

- A. State of Idaho, Department of Environmental Quality (IDEQ)
- B. State of Idaho, Central District Health Department (CDHD)
- C. International Building Code
- D. National Electrical Code
- E. International Fire Code
- F. Idaho State Plumbing Code
- G. Idaho Standards for Public Works Construction (ISPWC)
- H. City of Meridian Supplemental Specifications to the Idaho Standards for Public Works Construction (“Supplemental Specifications” or “City of Meridian Supplemental Specifications”)
- I. Meridian City Code (MCC) - Title 8 “Public Ways and Property”

### 2-3 ENGINEERING REQUIREMENTS:

All plans and specifications for land development/improvements which are to be owned and operated by the City shall be prepared, sealed and signed by the appropriately licensed Design Professional.

### 2-4 PLAN REQUIREMENTS:

All plans for the construction of water, sewer, recycled water, street lights and irrigation infrastructure to be owned by the City must be submitted to Development Services for review and approval.

### 2-5 INITIAL DEVELOPMENT/IMPROVEMENT OR UTILITY PLAN SUBMITTAL REQUIREMENTS:

The initial submittal of development, utility improvement or capital improvement project plans shall consist of the following (if applicable):

- A. One electronic version in PDF format, and one electronic version in AutoCAD format (as per the City of Meridian – Public Works CADD Specifications for Project Drawings); along with any specifications, computations, test data, and/or other site-specific materials requested by Development Services to adequately review the proposed project.
- B. One (1) copy of the final plat (minus signature sheets) digitally included with each set of plans.

- C. One (1) copy of each letter from any utility company affected by any water and/or sewer mains outside of the standard corridors. Plans may be submitted without a utility company waiver for out-of-corridor utilities. However, letters from utility companies approving out-of-corridor utilities must be provided prior to plan approval by the City of Meridian. If the applicant is unable to acquire a response from a utility company, they may contact ACHD for approval to construct the utilities out-of-corridor. If ACHD approves, the City must receive a copy of the ACHD approval before City of Meridian' plans will be approved.
- D. One letter stating whether or not any wells exist on the site being developed, and if so, what will happen with the well through the development of the project (e.g. will the well be abandoned or utilized for irrigation).

**2-6 DEVELOPMENT/IMPROVEMENT OR UTILITY PLAN RE- SUBMITTAL:**

One (1) PDF shall be returned for review and/or approval.

**2-7 DEPARTMENT OF ENVIRONMENTAL QUALITY REVIEW:**

All development/improvement or utility plans containing construction of or modifications to water systems, sanitary sewer systems, or recycled water systems require a review for compliance with state regulations. If the Developer wishes to use the City's Qualified Licensed Professional Engineer (QLPE) review service to conduct the required Idaho Department of Environmental Quality (IDEQ) review, an additional QLPE fee will be due before the plans are released to QLPE for review. The amount of the fee is based on the number of applicable pages reviewed. Any projects with recycled water systems, sewer lift stations, water wells, pressure reducing stations, pump stations or force mains may not be reviewed by the QLPE review service, and must be sent to IDEQ for review. If a developer does not wish to use the QLPE service, the developer is responsible for submitting the plans to IDEQ for review and approval.

**2-8 PLAN APPROVAL:**

Development Project plans will not be approved nor construction authorized until City of Meridian Review and Inspection Fees have been paid in full, and all applicable City of Meridian easements have been submitted and approved. Upon payment of fees, and approval of applicable easements, Development Services will issue the City Engineer's plan approval letter. One (1) hardcopy set of approved for construction plans, one (1) electronic version in PDF format, and one (1) electronic version in AutoCAD format (as per the City of Meridian – Public Works CADD Specifications for Project Drawings) shall be distributed to Public Works.

**2-9 PRE-CONSTRUCTION MEETING:**

A pre-construction meeting will be scheduled once all agency approvals have been obtained, and ACHD has approved the roadway portion of the Improvement Plans (if applicable), and traffic impact fees have been paid. These meetings will be scheduled and coordinated through the Public Works Construction Division.

**2-10 IMPROVEMENT PLAN REVISIONS DURING CONSTRUCTION:**

Should changes become necessary during construction, the Consulting Engineer shall first obtain the consent of the Project Inspector and the Civil Engineering Plans Examiner. The City Engineer may then be consulted by the Civil Engineering Plans Examiner for compliance with current specifications and to see if the proposed changes can be made in the field and covered with the Record Drawing submittal, or if revised plans are required.

If revised plans are required, the revised plan sheet(s) will be forwarded to the Civil Engineering Plans Examiner who will be responsible for reviewing and approving the project and coordination of distributing plans as appropriate.

**2-11 RECORD DRAWINGS:**

The Developer or their authorized representative shall be responsible for keeping an accurate record of all approved deviations from the originally approved plans, and shall provide copies of these records to the Construction Division for verification upon completion of the work.

Final approval of the completed improvements will not be given until as-built/Record Drawings are completed by the appropriate Design Professional (typically the Engineer of Record) and accepted by the City of Meridian. Requirements for Record Drawings are outlined in Section 3 of these Design Standards.

**2-12 CONFLICTS, ERRORS AND OMISSIONS:**

The Consulting Engineer is responsible for plans and specifications that meet all federal, state, and municipal laws, rules and standards. The City of Meridian reviews plans for general conformance to these laws, rules and standards. The Consulting Engineer however, is ultimately accountable/responsible for compliance, and City approval does not release them from this responsibility.

**2-13 CHANGE IN CONSULTING ENGINEER:**

If the Developer elects to change the Consulting Engineer during the project they shall provide Development Services, in writing, the name of the individual or firm that is taking over the project. The Developer and his new Consulting Engineer are responsible for construction verification, design change approval, record drawings and all remaining responsibilities of the original Consulting Engineer.

**2-14 INSPECTION REQUIREMENTS:**

Any improvement which will ultimately be owned and maintained by the City shall be inspected during construction by the City of Meridian Public Works Construction Division. Failure to obtain inspection may result in re-installation of infrastructure.

For projects where the City has agreed to provide reimbursement for certain infrastructure, quantities will be measured in the presence of the Project Inspector, and documentation verifying the quantities shall be provided.



## 2-15 **EASEMENTS:**

Generally, water, sewer and recycled water mainlines, and services shall be located in the public right-of-way. However, if it is necessary for a City of Meridian utility mainline (including hydrant laterals) or service line to be located outside the public right-of-way, the City shall be given permanent easements meeting the following requirements:

- A. Easements shall be submitted on the standard easement forms available on the City's website.
- B. Easements shall be a minimum of 20-foot-wide per utility, or 30-foot-wide for a combined water and sewer easement if the minimum 10 feet separation is maintained between mains. Easements shall extend 5 feet minimum (with 10 feet preferred) beyond the terminus of the main, service, or hydrant.
- C. No permanent structure shall be allowed within a City utility easement. Refer to City of Meridian standard utility easement documents for easement conditions/restrictions.
- D. If it is necessary to install a utility main under a landscaped area, the main shall be centered in a 20-foot wide (minimum) easement free of permanent structures (see item C above). Notes shall be included in the plans and easement referring to the standard easement document conditions/restrictions.
- E. Wider easement widths may be required for utility mains depending on the sewer depth, size, pipe directional changes, turning radius of service vehicles and location or if determined necessary by the Public Works Department. Easements widths for utility mains shall be based on sewer depth as follows:

Sewer Only Easement	
Sewer Trench Depth	Easement Width
0-15 ft	20 ft
16-20 ft	25 ft
21-25 ft	30 ft
26 – 30 ft	35 ft
30 +	45 ft

Combined Water/Sewer Easement	
Sewer Trench Depth	Easement Width
0-15 ft	30 ft
16-20 ft	35 ft
21-25 ft	40 ft
26-30 ft	45 ft
30 ft +	55 ft

For sewer and water in parallel, if sewer depth is greater than 15 feet, locate the water main 5 feet from the edge of easement and center the sewer main between the water main and other edge of easement. If sewer depth is equal to or less than 15 feet, install water and sewer 10 feet from the edges of easement with 10 feet separation between the two utility mains.

- F. If it is necessary to install a utility main under a private road, the main shall be centered in an easement that includes the entire road width and is a minimum 20-foot width.
- G. Temporary construction working easements or access of adequate dimensions shall be provided to allow construction within the permanent easement to be completed in a safe and reasonable manner.
- H. On development projects, all associated costs of easement acquisition will be at the sole expense of the Developer. Existing substandard easements, within the limits of the proposed project, shall be upgraded to current standards prior to plan approval.

**2-16 ACCESS ROADS:**

- A. Access to sewer, water and recycled water mains not located within public rights-of-way shall be provided by an all-weather gravel access road constructed of ¾" minus road mix gravel. See the Supplemental Specifications drawing No. G2. Some alternatives may be allowed for pipes located in landscape areas, but all manholes and valves must be accessible by an access road. Alternatives must be approved by the City Engineer.
- B. The maximum access road grade shall not exceed 10% and shall be shown in the profile view. The access road shall not block natural or artificial drainage and shall conform to the requirements of the governing agencies.
- C. Access roads for sewer manholes shall have curves designed for turning radii of 28 feet inside radius and 48 feet outside radius and a vertical clearance of 14 feet.
- D. Rim elevations of manholes located within access roads shall be equal to the elevation of the surface of the access road.
- E. Surface drainage from access road shall drain away from manholes.
- F. Hammerhead or intermediate turn-around spaces shall be constructed at the end of all access roads exceeding 150 feet in length and at intermediate locations as determined by Public Works.
- G. Easements will be required for all maintenance roads and turn-around spaces.

**2-17 OPEN WATERWAY CROSSING DESIGN:**

This section covers the design requirements when a water, sewer or recycled water main must cross an open waterway owned by a private user lateral association, irrigation district or the United States Government.

- A. General - The crossing of an open waterway requires user lateral, Public Works, irrigation district and/or United States approval of the design prior to commencing construction.
- B. A Project Agreement must be in place with the appropriate governing body prior to starting construction.
- C. Design requirements are as follows:
  1. Unless otherwise specified by the owner of the waterway, the main must be encased in a steel sleeve. Other criteria shall be per the requirements of the Supplemental Specifications.
  2. In all cases, the waterway bed elevation shall be used for design purposes.
  3. The top of the steel casing shall have a minimum 3 2 feet of cover from the lowest point of the waterway bed or as the appropriate governing body

requires.

4. Crossing details of pipe, steel sleeve, spacers, annular backfill, piers, anchorage, transition couplings, etc., shall be shown within the plans.
5. Sewer pipeline crossings above waterways shall be submitted to the City Engineer for review on a case-by-case basis.

**END OF SECTION-**

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## SECTION 3 GENERAL PLAN REQUIREMENTS

### 3-1 SECTION SUMMARY:

This section contains guidance and requirements for the preparation of construction plan sets.

### 3-2 APPLICABLE STANDARDS:

The requirements listed below shall apply to preparing construction plan sets:

- A. All applicable standards as listed in Section 2-2
- B. Latest edition of the City of Meridian Record Drawing Requirements / Acceptance of Record / Electronic Drawings
- C. Conflicts between these requirements shall be resolved on a case-by-case basis.

### 3-3 GENERAL REQUIREMENTS:

- A. All development plans for domestic water, recycled water, or sanitary sewer systems shall include a title sheet, layout sheet, plan/profile of each sewer line and standard notes.
- B. Plans shall be clearly legible, bound / stapled and shall conform to accepted practice with respect to drafting standards. All information, which in the opinion of the City of Meridian Public Works Department, is necessary for the satisfactory design, review, construction, and maintenance of a project, shall be provided and where applicable, shall be shown on the plans.

### 3-4 APPROVED PLANS:

Construction of City of Meridian public facilities, or connections to public facilities, shall not commence within the City of Meridian until plans and/or specifications for such facilities have been approved by the Development Services Division and all plan review fees have been paid. Plans shall be stamped "Approved for Construction" and signed by the Civil Engineering Plans Examiner prior to beginning construction. The City may order any Contractor to cease work on any project if said Contractor does not have properly approved plans in his possession at the job site.

### 3-5 PAPER SIZE AND SCALE:

All improvement plans shall be submitted utilizing standard plan sheet sizes and common engineering scales.

### 3-6 DRAFTING STANDARD:

All line work, letters and numerals must be clear, sharp and of appropriate weight.

### 3-7 TITLE SHEET:

All improvements plans shall have the following information as a minimum on the title sheet:

- A. Name of Project
- B. Index of sheets
- C. Vicinity map showing the project or parcel layout with the following information:

1. City limits (if applicable)
  2. Adjacent subdivision(s), including names and lot lines
  3. Major arterial cross streets with street names
- D. Name of Developer and contact information including a phone number and email address
  - E. Name of Consulting Engineering firm and contact information including a phone number and email address
  - F. Seal, signature and date of the Design Professional registered for the appropriate branch of work covered by the plans
  - G. US Governmental horizontal (NAD83 adjusted to ADA County H.A.R.N. Survey) and vertical (NAVD 88) benchmark datum and project benchmarks
  - H. Digline number
  - I. QR Code

**3-8 SHEET NUMBERING:**

Each sheet within a set of improvement plans shall be numbered consecutively. Sheet numbering shall conform to generally accepted drafting standards.

**3-9 TITLE BLOCK:**

Each sheet within the set of drawings shall have an approved title block showing the following:

- A. Project title
- B. Sheet title
- C. Sheet number
- D. Date
- E. North Arrow (if applicable)
- F. Scale Bar
- G. Consulting Engineer's name, signature and seal. Signature ~~may~~ shall be placed across the seal. The title block shall be either across the bottom or along the right edge of each plan sheet.

**3-10 SEPARATE LAYOUT SHEETS:**

On all subdivision plans, a separate plan sheet may be required for each of the following:

- A. Grading and Drainage
- B. Street Lights (if more than 1 new street light is required)
- C. Water
- D. Recycled Water
- E. Sewer
- F. Multi-use Pathways

In addition, plan and profile sheets shall show the plan and profile on the same sheet. The plan view should show storm drainage, sanitary sewer lines, multi-use pathways and other utilities. The profile view should show the storm drainage, sanitary sewer lines, and other utility crossings.

### 3-11 **PLAN DETAILS:**

In addition to the other requirements of these Design Standards, the following details shall be shown on the plans submitted for approval.

- A. **Record Information** - All existing and proposed:
  1. Right-of-way lines
  2. Boundaries of lots fronting the street
  3. Easements (existing and proposed)
  4. Both on-site and off-site rights-of-way and easement lines, properly dimensioned
  5. Adjacent parcel owner name
- B. **Existing Facilities** – All pertinent existing facilities shall be shown, including:
  1. Street Striping
  2. Medians
  3. Driveways
  4. Curbs
  5. Sidewalks
  6. Edge of Pavement (if no curbs are present)
  7. Location and size of all underground utilities
  8. Limits of 100-year flood plains structures
  9. Trees (6" and larger) and other foliage
  10. Traffic signals
  11. Street lights, service pedestals, junction boxes and underground electrical conduits
  12. Drainage ditches and detention basins
  13. Utility poles
  14. Fire hydrants
  15. Retaining walls
  16. Any other features of the area which may affect the design requirements for the project

When a probable utility conflict exists, the design professional should field verify (by potholing if necessary) the extent of the conflict. Field verification should take place prior to the completion of final plans or be required of the Contractor prior to construction.

- C. **Contours** – Existing contours shall be shown on all plans. The scale shall be such that the plans are both readable and representative of the existing or planned site. See Section 7, "Grading & Drainage" for offsite requirements.
- D. **Profiles** – The construction drawings shall show the existing profile of the roadway centerline and the proposed design centerline. Gravity pipelines such as irrigation, sewer and storm drainage should be shown in the profile. Crossings of pressurized pipelines such as irrigation, water and recycled water should be shown to identify potential conflicts. Designs of proposed public improvements shall include profiles showing centerline elevations at 50-foot intervals and rates of grades, vertical curves, and other vertical alignment data.

- E. **Stationing and Orientation** – It is preferred that the stationing on plan and profile sheets read from left to right and be based on either roadway centerline or sewer pipe centerline.
- F. **Benchmarks** – Location, description, and elevation of benchmarks and datum shall be clearly delineated on the plans.
- G. **Cross-Sections** – Cross-sections shall be included in the plans where determined necessary by ~~Development Services~~ Public Works. Sections shall include all pertinent structural and topographical features. Section call-outs shall be identified by a number and letter and the sheet on which the section appears.
- H. **Special Notes** – Special notes shall be clearly indicated, and it shall be conspicuously noted on the plans that all construction work and installations shall conform to the City of Meridian Supplemental Specifications and that all work is subject to the approval of Meridian Public Works.

**3-12 REQUIRED STANDARD NOTES:**

A list of all required standard notes may be obtained from the City of Meridian website, and shall be included on all improvements plans submitted to the City for approval.

**3-13 STANDARD DRAWINGS:**

Consulting Engineers do not need to include any City standard drawings on improvement plans, but shall refer to the City of Meridian Supplemental Specifications by number where appropriate. If a variance to a standard drawing is intended, the drawing number shall be shown with the variance noted or a separate detail shown.

**3-14 RECORD DRAWINGS:**

For information regarding record drawings, reference the latest version of *Acceptance of Record / Electronic Drawings* on the City of Meridian website.

**3-15 PLAN REVISIONS:**

Plan revisions shall be clouded and include a note in the revision table for each sheet that has been revised.

**-END OF SECTION-**

## SECTION 4 DOMESTIC WATER SUPPLY SYSTEM

### 4-1 SECTION SUMMARY:

This section contains guidance and requirements for the following: water supply, water main design, and water system appurtenances.

### 4-2 APPLICABLE STANDARDS:

The requirements listed below shall apply to the design of domestic water supply systems. Conflicts between these requirements shall be resolved on a case-by-case basis.

- A. All applicable standards as listed in Section 2-2
- B. IDAPA 58.01.08, “Idaho Rules for Public Drinking Water Systems”
- C. Recommended Standards for Water Works (Ten State Standards)
- D. Meridian City Code (MCC) - Title 9, Chapter 1 “Water Use and Service” and Chapter 3 “Cross-Connection Control”

### 4-3 DESIGN OBJECTIVES:

Overall objectives for design of water infrastructure are:

- A. Ensure infrastructure is properly sized and located to provide fire protection according to the City’s minimum standards and adopted fire code.
- B. Provide redundant supply to all developments when a connection is reasonably available.
- C. Ensure best water quality by minimizing dead ends and avoiding over-sized water mains.
- D. Minimize long term cost of maintenance and replacement by:
  1. Minimizing the length of water mains and City-owned service lines
  2. Adhere to documented standards to reduce maintenance cost

### 4-4 WATER SUPPLY REDUNDANCY:

New developments should be designed and constructed to provide redundant water supply (supply from more than one water main) to customers whenever reasonable. The water mains should be arranged to create a looped system and allow flow from multiple directions (minimizing dead-ends). Exceptions shall be approved by the City Engineer.

### 4-5 WATER SUPPLY PRESSURE:

City of Meridian Engineering staff will model additions or changes to the water supply and distribution system. Normal operating pressures (Average Day Demand) at service connections across the distribution system must be no less than 55 pounds per square inch (psi) and no more than 80 psi unless approved by the City Engineer.

### 4-6 WATER DEMAND:

For the design of water distribution systems serving residential areas, the assumed water demand for design purposes is 0.5 gallons per minute (gpm) per residential unit Maximum Daily Demand (MDD) plus appropriate fire flow. For the design of water distribution systems serving commercial areas, water demand shall be determined on a case-by-case basis.



**4-7 FIRE FLOWS:**

Required fire flows shall be determined on a case-by-case basis by the most recently adopted revision of the International Fire Code, the Meridian Fire Department, and the Engineering Division. Fire flows shall be modeled by City of Meridian Engineering staff according to IDAPA requirements. City of Meridian minimum standard for fire flow for any use is 1500 gpm at 20 psi for two (2) hours.

**4-8 WATER MAIN DESIGN:**

Design requirements for water main layout, size and location shall conform to the latest Meridian Water Master Plan Update, and Engineering Division water modeling requirements.

- A. All water main pipe types are as indicated in the City of Meridian Supplemental Specifications.
- B. Minimum water main size (excluding hydrant laterals) shall be eight (8) inches. Twelve (12) inch water mains shall be installed at section-line roads and approximately halfway between section-line roads. Ten (10) inch mains are not allowed unless approved by the City Engineer.
- C. Design should limit maximum velocity to 5 ft/sec at MDD and 10 ft/sec during fire flows.
- D. Water mains shall be aligned straight between valves or fittings. “Roping” or joint deflection is not allowed unless approved by the City Engineer.
- E. The water mains shall be shown in the plan view and must identify pipe size, pipe material, location of valves, fire hydrants, existing water lines, air release/vacuum valves, blow-offs, water services, and all other appurtenances public or private including easements. Water mains shall be shown in the profile view where potential conflicts with other utilities exist.
- F. Install water mains within public rights-of-way and or dedicated City easements. Avoid installing mains in Idaho Transportation Department right-of-way. Avoid round-about / traffic circle footprints and concrete intersections, or cross using DR7 fused HDPE pipe. If crossing traffic circles or intersections with HDPE, meet or exceed ID of adjacent pipe and include 4-way valve cluster at cross. For concrete intersections, include valves on each leg 10 ft from edge of concrete unless other locations are more appropriate. Do not install water mains in common drives unless required by Engineering for redundancy or fire flow.
- G. Water mains should be located on the north and east sides of streets (see City of Meridian Supplemental Specifications drawing G1). Whenever possible, appurtenances should be located to avoid normal vehicle wheel paths.
- H. Minimum cover over water lines under section-line and mid-section line roadways that have not been fully developed, or in unpaved areas, shall be five (5) feet from top of pipe to finished grade. In all other areas, minimum cover shall be four (4) feet from top of pipe to finished grade. Water main depths of greater than six (6) feet shall be approved by the Engineering Division on a case-by-case basis. Where deeper mains are approved, valve stem risers shall be provided.
- I. Water mains shall maintain a minimum clearance from all other utilities of at least 12 inches vertical and 4 feet horizontal, except non-potable water pipelines which shall maintain separation recommendations as set forth by the Idaho Rules for Public

#### Drinking Water Systems.

- J. Connections to transmission mains (mains dedicated for moving water from supply to storage, pressure zones, or demand centers) shall not be allowed unless specifically approved by the City Engineer.
- K. Connections to water mains in arterial roads should be avoided if connection to mains in local roads, or easements is feasible.
- L. In commercial areas, water mains should be stubbed from public roads, then connections made to services and fire lines outside the right of way.
- M. Water mains in unimproved areas shall have a gravel access road.  
(See Section 2-16 A.).
- N. Dead ends shall be minimized. Water mains should be designed to connect to neighboring properties to complete current or future loops or grids. Cul-de-sacs should be connected by water mains through easements whenever reasonable.
- O. Dead-end water mains shall be terminated with a fire hydrant and appropriate fittings, whenever possible. At locations where hydrants cannot be installed, a 4 inch blow-off shall be installed per City of Meridian Supplemental Specifications. At temporary dead ends (such as at subdivision phase lines) a 2 inch blow-off assembly shall be installed, per City of Meridian Supplemental Specifications. Blow-offs shall be located in a manner that enables easy access and maintenance including proper easements. Avoid blow-offs in arterial roadways and areas of dedicated foot traffic, whenever possible.
- P. Existing water main stubs installed to serve undeveloped areas that remain unused by new development shall be abandoned at the time of the new development. These stubs shall be abandoned at the active main by removal of the gate valve and installation of a blind flange or plug at the fitting. Gate valves shall not be abandoned in place without prior approval of the City Engineer. Any associated easements that are in place for these stubs shall be properly eliminated per City requirements.
- Q. Water mains that are allowed to remain in the ground after abandonment shall have each end filled with cement grout. The grout plug shall extend 20-feet into the pipe. The size and type of water main to be abandoned shall be noted on the plans with a requirement for the contractor to verify.
- R. Steel Casings- Steel casings are intended to protect the water main, protect the utility or road being crossed, and/or allow access for maintenance or replacement.
  - 1. Steel casings shall be required in the following situations:
    - Open channel water crossings
    - Crossings of State Highways
    - Crossing of Railroad Tracks
    - Crossings of any utility where the owner of such utility may limit the City's ability to access the water main (such as irrigation district facilities). Steel casings are not required for irrigation delivery canals, ditches or pipes where construction and maintenance activities have no seasonal restrictions.
  - 2. Design Standards:
    - Locate casings outside the footprint of bridges / culverts whenever possible
    - Casings crossing roadways must be extended far enough to provide easy access for maintenance, repair or replacement. (See Standard

Drawing SW1)

3. See Standard Drawing W15 for more information.

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**WATER SYSTEM APPURTENANCES:**

Water system appurtenances discussed herein include valves, fire hydrants, blow-off assemblies, water service lines, meter setters, meter boxes, meter pits, water meters, pressure reducing stations, wells and well lots. Other appurtenances may include air relief valves, pressure relief valves, detector check valves, sampling stations and backflow prevention devices.

**A. Fire Hydrants -**

1. The Meridian Fire Department shall determine the fire hydrant location requirements for all developments. Maximum spacing is 400 feet as measured along the street frontage in residential developments, 300 feet maximum in commercial developments, or closer if deemed necessary by the Meridian Fire Department. On collector and arterial roads, fire hydrants are required as needed to protect structures or at a maximum spacing of 1000 ft.
2. Private fire hydrants are not allowed.
3. Fire hydrants shall not be connected to transmission mains unless approved by the City Engineer.
4. Fire hydrants shall not be connected to fire sprinkler service lines.
5. Fire hydrants shall be placed at street intersections wherever possible and located to minimize the hazard of damage by traffic.
6. Hydrant valves (gate valves located at beginning of the hydrant lateral) shall be at least 5 feet from the hydrant to allow access in the event of a failure at the hydrant.
7. Fire hydrants located at intersections should be installed as close to the start or the end of the curb or edge of pavement radius as practical, while avoiding sidewalks, and pedestrian ramps. See the City Supplemental Specifications for detailed drawings of typical installations and required clearances (DWG W8 and W9).
8. Fire hydrants shall be located 5 ft minimum from permanent structures (buildings, carports, trash enclosures etc.) Where feasible, locate hydrants 10 feet from permanent structures (buildings, carports, trash enclosures etc.).

**B. Gate Valves and Blow-off Assemblies –**

1. For local and collector roads, at least 2 valves shall be provided at “T” junctions, and at least 3 valves at cross junctions. Connections made by hot tap are not exempt from this requirement. Existing valves may allow a hot tap connection to meet this requirement. When evaluating which legs of a T to provide with valves, redundancy must be evaluated. Generally, the leg with no supply should not have a valve.
2. For arterial roads, valves shall be provided at pipe junctions in all directions. Exceptions to this rule may be allowed by the City Engineer when hot tapping active water mains is required. Hydrant laterals are not required to have two valves, but shall always include at least one valve on the hydrant lateral per Standard Drawing W8.
3. Future water main extensions with blow-off assemblies:
  - Extension less than or equal to 60 feet in length with no service connections:
    - Use Standard Drawing W12, with no inline valve
  - Extensions greater than 60 feet in length or with service connections:

- Use Standard Drawing W13 including valve. Do not include a gate valve on connecting leg of new water main to eliminate redundant valves.
  - Junctions closest to blow-offs for future main extensions should have valves in all directions.
- 4. Size-on-size hot taps are not allowed unless approved by the City Engineer.
- 5. In commercial areas, valve spacing should not exceed 500 feet.
- 6. In residential areas, valve spacing should not exceed 800 feet (Ten States Standards).
- 7. In areas without customer connections, valve spacing shall not exceed 1,000 feet.
- 8. Valves and blow-off assemblies that are no longer needed shall be abandoned by removal and installation of a blind flange, plug, or pipe extension as appropriate.

### C. **Water Services**

1. Water services shall be clearly called out by standard detail and size on plan sheets.
2. In residential areas, water service lines from the water distribution main to the property shall be installed at the time the main is constructed. Service lines shall not be installed across private property other than that being served, with the exception of appropriate common areas.
3. In commercial areas, water service lines, fire service lines and hydrants should not be tapped in the public streets. Mains should be stubbed into the property, then tapped or provided with T's for those features. Maximum distance from service connections to dead ends shall be less than 3 feet.
4. Avoid installing two or more parallel services when 1 larger service can be installed.
5. Standard size of a residential water service line shall be one (1) inch. Schools, commercial, industrial, or multiple family units with higher water demand shall be provided with larger service lines as determined by project engineer and subject to approval by Development Services.
6. ¾ inch double water service connections cannot exceed 80 feet from the main to the meter. If greater than 80 feet, use 1 inch single service. In commercial areas, service lines from mains to meters should be as short as practical and should not exceed 40 ft.
7. For non-residential sites that include consumptive water uses that do not release water to the sewer system (such as sprinklers, cooling towers, pools, and water features), developer should consider including separate services for such uses to allow for correct sewer billing.
8. Services should be aligned so they are at 90° angles to the water main. If developments are approved then later modified, adjust/abandon existing services to meet these standards. Cul-de-sacs and street curves may require some variance to the 90 degree rule.
9. Whenever possible, meter vaults shall not be placed in problematic areas such as high traffic areas, designated areas of foot traffic or within 10 feet of building foundations. Avoid installing meter vaults in common drives.
10. Whenever possible, avoid running water service lines through underground

storm water filtration beds or under drainage swales. See the City of Meridian Supplemental Specifications to the ISPWC for sleeving requirements for services through storm water facilities.

11. Any unused water services must be abandoned at the mains: If the main is depressurized, abandon by removing the corporation stop and installing a brass plug in the service saddle. If the main is pressurized, abandon by closing the corporation stop, disconnecting (cutting) the service line, and installing a cap or copper disk on the corporation stop. Unused meter vaults and associated parts must also be removed.
  12. Any unused water main stubs shall be abandoned ~~at the street water main~~ by removing the gate valve and installing a blind flange. Gate valves shall not be abandoned in place without prior approval of the City Engineer.
  13. All fire service lines must be clearly shown on plans, including size and location of jurisdictional valve. Minimum size of jurisdictional valve shall be 4 inch. Jurisdictional valves shall not be located in public right-of-way.
  14. Water service lines shall not be tapped into fire service lines or hydrant laterals (between the auxiliary gate valve and the hydrant).
- D. **Water Meters** – Water meters shall be installed on all residential, commercial, industrial, multi-family, public facility, and irrigation water services according to City Code requirements. Meters will be installed by the Water Division of Public Works only after water system is owned by the City of Meridian. Installation of water meters, bypass lines, or jumpers by anyone other than the Meridian Water Division is prohibited. The installation of meter pits and all meter setter appurtenances are the responsibility of the developer’s contractor.
1. New water services and meters serving single family homes over 3600 sf (not including garage) shall be at least 1 inch.
  2. Water services and meters in new residential developments with lots exceeding 17,000 sf shall be 1 inch.
  3. Water meters over 1 inch shall match the size of the service lines from the main to the meter pit, except for 3 inch meters, which shall have 4 inch service lines.
- E. **Locate Stations** –Locate stations shall be installed every 500 feet in combination with fire hydrants or by themselves. See City of Meridian Supplemental Specifications.
- F. **Pressure Reducing Valve (PRV) Stations** – Pressure Reducing Valve Stations may be required for development that occurs at or near planned pressure zone boundaries. Determinations for requiring PRVs will be made by the Engineering Division through modeling and fire flow demands. If a PRV is required to serve a new development, the City of Meridian will purchase and install the PRV, interior piping, valves and telemetry equipment needed to operate the new PRV. The developer will be responsible for the following:
1. Providing for the location of the PRV vault. Landscaped areas are preferred to street installations.
  2. Providing an easement for installations outside of the public right- of-way.
  3. Purchasing and installing the concrete vault as required by the City of Meridian per specifications provided by Engineering Division.
  4. Providing electrical service to the vault. Coordinate location and electrical

requirements with the Engineering Division.

5. Stubbing the water mainline to the inside of the vault and either:
  - Installing a flange by flange ductile iron spool in the place of the PRV equipment, to ensure alignment of the water main penetrating the vault, or
  - Coordinating with Engineering to allow the City to purchase, assemble, and install the PRV equipment in conjunction with the developer's placement of the vault and/or water mains.

**Note**—the PRV plans and specifications will need to be submitted by the City to the Department of Environmental Quality for approval. The developer's engineer shall coordinate with City of Meridian (COM) Engineering to obtain the correct PRV detail and include it in their construction plans. COM Engineering will develop a Preliminary Engineering Report (PER) for the PRV. After the developer's plans are approved by Land Development, COM Engineering will submit the PER along with the appropriate plan sheets to DEQ for review and approval (or the entire plan set if the developer prefers). Upon approval, COM Engineering will submit the approved package back to Land Development.

- G. **Booster Stations-** Booster Stations may be required for development that occurs at or near a pressure zone boundary. Booster stations shall meet the requirements found in the Idaho Rules for Public Drinking Water Systems. Required pumping capacity for booster stations shall be determined by the Engineering Division through modeling for the service area and planning period. Permanent booster station pumping facilities will be designed and constructed through capital projects managed by the Engineering Division. Temporary booster station pumping facilities will be designed and constructed by the developer with review by the Engineering Division. In both cases, the developer will be responsible for the following:
1. Providing for the suitable location of the booster station site by providing a deed. Minimum lot size shall be 140 feet by 140 feet.
  2. Providing 14-foot wide paved access to the booster station site.
  3. Providing three-phase electrical service to the site. Coordinate location and electrical requirements with the Engineering Division.
  4. Stubbing the water mainlines and service lines to the site, providing easements as required.
  5. If architectural and landscape features other than a chain link fence, minimum landscaping requirements per City of Meridian's development requirements, and split face block building with metal roof are desired to screen and otherwise blend into the neighboring surroundings, the developer will be required to coordinate with and compensate the City for these additional expenses.

**Note**—the booster station plans and specifications will need to be submitted by the City to the Department of Environmental Quality for approval.

- H. **Wells and Well Lots-** Test wells, production wells, buildings and pumping facilities will be designed and constructed through capital projects managed by the Engineering Division. The developer will be responsible for the following:
1. Providing for the suitable well site by providing a deed. Minimum lot size shall be 140 feet by 140 feet.

2. Providing 14-foot wide paved access to the well site.
3. Providing three-phase electrical service to the site. Coordinate location and electrical requirements with the Engineering Division.
4. Stubbing the water main and service line to the site. Provide easements as required. Whenever possible, wells should be located near creeks or drains that allow for flushing.
5. Providing an easement for a flush line to an approved discharge point, or a flush line and easement if development occurs prior to the City capital project.

**Note** –the well plans and specifications will need to be submitted by the City to the Department of Environmental Quality for approval. Additionally, the well development process can take multiple years for permitting, testing, development, design and construction.

**-END OF SECTION-**

## SECTION 5

### SANITARY SEWER SYSTEMS

#### **5-1 SECTION SUMMARY:**

This section contains guidance and requirements for the following: sewer pipeline design, determining when sewer shed studies / design reports are required, general lift station information, force mains, placement of sewer mainlines and manholes, sewer services and pretreatment.

#### **5-2 APPLICABLE STANDARDS:**

The requirements listed below shall apply to the design of sanitary sewer systems. Conflicts between these requirements shall be resolved on a case-by-case basis.

- A. All applicable standards as listed in Section 2-2
- B. IDAPA 58.01.16, “Wastewater Rules”
- C. IDAPA 58.01.08, “Idaho Rules for Public Drinking Water Systems”
- D. Recommended Standards for Wastewater Facilities (Ten State Standards)
- E. Meridian City Code (MCC) - Title 9, Chapter 4 “Sewer Use and Service” and Chapter 2 “Sewer Pretreatment”

#### **5-3 CAPACITY DESIGN:**

Sanitary sewer system design must include provisions for the size and capacity to convey all domestic, commercial, institutional, and industrial waste that can be reasonably anticipated under conditions of full or ultimate development. Design flow shall be for peak wet weather flow. The determination of average dry weather flows for design purposes shall be based on the best available information concerning land use and density as estimated for land use plans, under the jurisdiction of the Meridian Community Development Department, to form the basis for qualifying present and future wastewater design flows. This information may include approved land use and density in accordance with current zoning in the absence of more specific information pertaining to expected development.

- A. **Capacity** – After an application is received by Planning or Development Services, the Engineering Division will run the total flows in the sewer model to evaluate if the proposed design has the capacity to adequately serve the entire tributary area. The City will also include flows for infiltration allowance depending on the location of the proposed development.

#### **5-4 SEWER SHED STUDIES:**

A sewer shed study is a plan to provide sewer service to a specific portion or sub- service area of the City, and will become part of the organizational knowledge and historical documentation used by the Engineering Division for future planning. When a sewer shed study is required, it shall be submitted and approved prior to submittal of project improvement plans.

- A. **Submittal and Approval** - Submittal and approval of a sewer shed study may be required if the Engineering Division determines any of the following conditions exist:
  1. The land use of the development is different than what was assumed in the



### Sewer Master Plan and Comprehensive Plan

2. Upstream or adjacent areas might require sewer service through the subject property
  3. Downstream sewer capacity is limited
  4. It may not be possible to serve the project and/or surrounding area with gravity sewer service
  5. Interim sewer facilities may be required
  6. Off-site sewer facilities may be required
- B. **General Study Requirements** – In order to develop a sewer shed study, the minimum information that must be accumulated and presented includes:
1. Area to be served by the local collection and trunk facilities
  2. An analysis of the regional setting
  3. Topography information of the area to be served (delineated on a topo map)
  4. Any specific projects that precipitated the study
  5. Relevant assumptions and special conditions
  6. Proposed sewer infrastructure
  7. Ultimate development within the study area
  8. Hydraulic grade line at point of discharge into major facilities

It is important to note that the same assumptions used in the current Sewer Master Plan (such as values for infiltration rates) should also be used in generating a sewer shed study.

- C. **Study Map** - The method of providing sewer service to the entire service area, including pipe sizes, lengths, slopes, and inverts, shall be shown to the extent necessary to determine the requirements within the subject property. All areas to be served through the project site, per the latest City Sewer Master Plan, must be included in the project flows.
- D. **Study Slopes** – The minimum slopes for gravity pipe shall be determined using the design parameters outlined in the Ten State Standards, but in no case less than 0.1%. Additionally, for those areas where the pipe route is not clearly defined, pipe grades shall allow for an additional 20% pipe length for potential meandering trunk pipeline paths.

### 5-5 **DESIGN REPORTS:**

For construction of new sewer trunk pipelines (those 10 inches in diameter or larger) and lift station facilities, a Design Report may be required. Design Reports shall meet all requirements of the Engineering Division to include as a minimum, the following information:

- A. **Introduction and Background** - Use an exhibit for a project location map and identify whether the proposed facilities will be used on an interim or permanent basis.
- B. **Previous Studies** - Sewer Master Plan information, Specific Plans, Community Plans, and other Sewer Studies that pertain to the project should be referenced and built upon. If appropriate, those documents should be amended if the proposed project will require significant changes to previously approved documents.
- C. **Environmental Document and Geotechnical Report** – If these documents are required, findings must be referenced and incorporated to address environmental and

geotechnical requirements. Incorporate reference exhibits and photographs as necessary.

- D. **Existing Sanitary Sewer Facilities** - Identify and briefly discuss whether the project is located within the City's service area. Discuss the existing sewer facilities available in the area. Incorporate and reference exhibits as necessary.
- E. **Planned Sewer Improvements** - Discuss the proposed interim or permanent facilities. Identify outfalls and discuss any proposed alternatives and available options. Incorporate and reference exhibits as necessary.
- F. **Phasing** - Identify phases of proposed development, referencing exhibits that depict the lots proposed to develop at each phase. Discuss the upgrades that are necessary at each phase and include a narrative on what triggers the necessity of implementing the upgrades to encompass the facilities, equipment, costs and timeline for implementation of triggers, design and construction aspects. When an interim lift station is allowed by Public Works, discuss when and how the facility becomes unnecessary.
- G. **Lift Stations** - Provide a narrative of any proposed lift station demonstrating compliance with the City of Meridian Lift Station Specifications and Drawings. Incorporate the requirements for conveyance of deeds and easements. Incorporate and reference exhibits as necessary.
  - 1. **Lift Station Site Design** - Provide attachments as necessary for the preliminary design of the site. Include specifics on the size, location, and materials for the building, fencing, gates, and equipment on the site. Include the location and size of vaults that will encase air/vacuum valves, flow meters, check valves, gate valves, etc., and specify the sizes and materials for these valves. Include an Emergency Bypass connection with the necessary appurtenances. Identify the location and size of the water service. Discuss the need for a hoist or crane. Incorporate and reference exhibits as necessary.
  - 2. **Wet Well and Pumping Alternative** - Discuss any alternatives considered for wet well and pump design. Include all appropriate information necessary to analyze the size and depth of the wet well as well as alternatives for the type, size, and number of pumps. A narrative on maintenance requirements of the proposed facilities must be included. Discuss any bypass pumping that may be needed during construction. Include flotation calculations if groundwater is present or anticipated.
  - 3. **Recommended Force Main Design** – Refer to Section 5-5.H.
  - 4. **Electrical and Controls** - Identify the location of above and underground electrical facilities to serve the site, including the size and location of the transformer. Describe the equipment needed for the site, including lighting, PLC, SCADA, RTUs, pressure transducer and alarm systems, etc. Also, describe the need for emergency power and generator design (if incorporated). Incorporate and reference exhibits as necessary.
  - 5. **Odor and Corrosion Control** - Discuss necessity and alternatives for odor and corrosion control.
  - 6. **Emergency Storage** - Provide calculations on the facilities that will be used for emergency storage of sewage in the event of a pump station outage. Identify the location and elevation of the lowest manhole rim in the storage system and any others in the existing or proposed sewer system that may be

adversely affected. Incorporate and reference exhibits as necessary. Requirements for calculating the emergency storage are presented in the most current version of the City of Meridian Sewer Lift Station Specifications and Standard Drawings.

- H. **Force Mains:** All pipes utilized for sanitary sewer force mains shall be pressure-rated pipes approved by Meridian Public Works. Force mains shall be designed so that the pipeline is always full, and no point in the vertical alignment is located above the energy grade line. The design report shall address the entire force main system's projected layout, starting from the pumps and for the full length of the force main to the outfall back to the gravity system. In the event that plans are submitted that make changes to this layout, an amendment to the design report shall be required to verify that the proposed changes will not affect the pump sizing or efficiency. The force main shall be designed and submitted concurrently with the pumps/lift station.
1. **Size and Velocity** – The force main shall be sized to produce a fluid velocity of no less than 2 feet per second at least once per day, and no more than 8 feet per second. Unless otherwise approved by the Engineering Division, the minimum force main size shall be four (4) inches in diameter.
  2. **Hydraulic “C” Factor** – For determining the head loss, use the Hazen Williams equation with a C factor of 120.
  3. **Thrust Forces and Shearing** – The design report shall provide recommendation for mitigation of these forces in the onsite structures and the force main. Thrust forces in a force main shall be mitigated through joints that are restrained or anchored to prevent movement and separation. To avoid shearing due to differential settlement, flex couplings shall be installed on pipelines between pump station structures (i.e. wet wells) and vaults, and between valve vaults and bypass vaults.
  4. **Water Hammer** – Water hammer (surge) shall be addressed in the design report as required by the City. Water hammer shall be evaluated for the normal operation of the pump station as well as for power failure while the pump(s) are running. The modulus of elasticity of the pipe material shall be considered when evaluating water hammer effects. The potential impact of water hammer shall be evaluated with special consideration given to cyclical loadings that are inherent in wastewater force mains. A safety factor of 1.5 shall be used when determining the adequacy of all piping system components with regard to withstanding system pressure, and at a minimum, the following shall be addressed in the surge analysis:
    - o Transient pressures due to water hammer and the effect of these pressures on the entire system
    - o Cyclic loading of the force main
    - o Investigation of the pipeline profile to determine the possibility of water column separation
    - o Shut-off characteristics of all proposed pump control valves, including check valves
    - o Substantiation for the use of surge control valves and other surge protection devices, when necessary, listing recommended size and computed discharge pressure
  5. **Location/Separation** – Force mains shall be located within the public rights-of-way or in an appropriate easement. A minimum clearance from all other

utilities of at least 12 inches vertical and 4 feet horizontal should be maintained, except potable water pipelines which shall maintain minimum separation recommendations as set forth by the Idaho Rules for Public Drinking Water System. A force main alignment that is straight between structures is preferred. However, pipe joint deflection not to exceed ½ of the Pipe Manufacturer’s allowable deflection is allowed, but verification of the deflection angle by the contractor is required. Where practical, force main alignment shall also be parallel to curbs, street centerlines, property lines, and/or easement lines.

6. **Profile** –A continuous upward slope from the pump station to the discharge point is desired, even when reasonable over-excavation is required to accommodate the continuous upward slope. In the event that a high point cannot be avoided, and is allowed by Public Works, a combination air release valve shall be installed.
7. **Corrosion Protection** – All ductile iron pipes shall be protected from corrosion.
8. **Combination Air Release Valves** – Where high spots in the profile cannot be avoided, combination air release valves (CARVs) shall be installed so that air can be purged from the force main. CARVs shall also be installed as close as possible to the check valves as needed to ensure the protection and maximize the operation of the pumps. An appropriately sized CARV drain line shall be routed to the nearest gravity manhole for drainage if practicable. CARVs shall be constructed in accordance with Standard Drawing of Meridian’s Supplemental Specifications.
9. **Force Main Discharge** – The force main shall enter the transition manhole with its center line horizontal and an invert elevation matching the spring line of the gravity line to ensure a smooth transition of flow to the gravity flow section. New discharge manholes shall be smoothly coated with Sprayroq Sprayshield or Spraywall coating or equal. Existing manholes showing signs of corrosion or if over ten years old shall be smoothly coated with Strong Seal or Sewpercoat cementitious coating or equal.
10. **Cost Estimate** - Provide an Engineer’s estimate of design, construction, and operating costs if required by the City.
11. **Project Schedule** – Provide the projected timeline for the project, focused on major start/stop and completion dates.
12. **List of Tables** – Provide a list of tables used in the design report. At a minimum this should include lift station design criteria and a summary of the projected sewage flows at build-out and the design flows at various stages of development.
13. **List of Exhibits** - Provide a list of the exhibits used in the design report, at a minimum, this shall include a location map, the overall sewer study area, existing and proposed sewer facilities, and the overall sewer layout proposed. This shall also include preliminary drawings for the pump station design such as the site plan, section through the pump station wet well, single line diagram and load calculations.
14. **Attachments** - At a minimum, the attachments shall include a cost estimate, pump curve with system curve superimposed, calculations for system curve, wet well sizing calculations, emergency storage calculations, cut sheets from

manufacturers of proposed facilities and equipment, air/vacuum release valve design sizing and project literature, and a site-specific geotechnical report.

#### 5-6 **SANITARY SEWER MAIN DESIGN :**

All sanitary sewer mainlines shall be placed within public street rights-of-way unless the use of easements is specifically approved through Development Services. Locate manholes to ensure access for routine maintenance. Sewer facilities shall not be placed in any joint utility trench unless otherwise approved by the City Engineer. Consideration shall be given for future development when locating manholes in new lines.

- A. **Horizontal Alignment** – Pipelines shall be parallel to the street centerline wherever possible. If a change in alignment is necessary, it will require the construction of a manhole.
- B. **Steep Sewer Pipe Slopes** can deposit material on manhole shelves, generate odors, and create corrosive gas. For these reasons we need to implement practices that limit these situations. Going forward, the maximum pipe slopes identified below ~~should~~ will be used in reviewing and approving plans for new development unless otherwise approved by the City Engineer.
  - 1. Maximum 8 inch PVC pipe slopes should be limited to 8%
  - 2. Maximum 10 inch PVC pipe slopes should be limited to 6%
  - 3. Maximum 12 inch PVC pipe slopes should be limited to 5%

If slopes less than these cannot be maintained then a drop manhole may be a viable option. Slopes greater than those shown above may be permitted if there is no change in the direction of flow. Both of these options must be pre-approved by the City Engineer.

- C. **Vertical Alignment** – A constant slope between manholes is required. If a change in slope is necessary, a manhole is required at that point.
- D. **Location within Roadways** – Sewer mains shall be located in a corridor measured from 10 feet south or west to 5 feet north or east of the centerline of any roadway.
- E. **Location in Constrained Existing Streets** – When sanitary sewers are to be installed in an existing street, factors such as curbs, gutters, sidewalks, traffic conditions, traffic lane conditions, pavement conditions, future street improvement plans, and existing utilities shall all be considered. The approval of all appropriate jurisdictional entities and Public Works Engineering Division shall be obtained.
- F. **Relocated Mains** – Sewer mains installed to replace existing facilities shall generally follow existing alignments, but may be realigned as deemed necessary to achieve optimum flow conditions, reasonable access, and separation from existing utility infrastructures. Where possible, existing sewer pipelines in easements and alleys shall be relocated to nearby streets or public rights-of-way.
- G. **Locating Sewer/Water Mainlines in Landscaping** - The preferred location of wastewater utilities is in the public right-of-way where they can be easily operated and maintained. If mains cannot be installed in the public right-of-way, then they should be located in a dedicated alley or easement dedicated to the City of Meridian. However, manholes should be located in the public rights-of-way.
- H. **Prohibited Locations** – Construction of sanitary sewers shall be prohibited in the following locations unless otherwise approved by the City Engineer:
  - 1. Within the 100-year floodway

2. Within jurisdictional wetlands
  3. Parallel and underneath roadway landscaped medians, however crossings are acceptable
  4. Within railroad rights-of-way unless a separate easement or license agreement is acquired
  5. Within “backyard” and “side-yard” easements
  6. Areas inaccessible to equipment or personnel
  7. Within 10 feet of any building or structure. If the sewer depth is greater than 10 feet or sewer size is larger than 10 inches, this distance may have to be greater depending on the soil conditions.
- L Separation from Potable and Recycled Water Mains** – Separation shall meet the requirements called for in the IDAPA 58.01.16, “Wastewater Rules”. If the IDAPA separation requirements cannot be met, a letter to the City Engineer requesting a waiver of the requirements, along with an explanation for the request, should be submitted. If the waiver is justified the applicant will receive written notification approving the waiver.
- M. Horizontal Separation Between Water and Sewer Lines** – Where sewers are constructed deeper than 15 ft to flowline, separation greater than 10 ft is desirable. See table in Section 2-15.E
- N. Separation From Other Utilities** – A minimum horizontal clearance of 4 ft and vertical clearance of 1 ft is required for all utilities crossing water and sewer mains.
- O. Drainage Swales** – Sanitary sewer pipelines crossing drainage swales shall require a steel sleeve to be installed allowing access for maintenance and removal of the pipe. The pipe sleeve shall have 1 foot of clearance from the top of the sleeve to the bottom of the swale. HDPE DR7 pipe may be substituted for steel.
- P. Abandoning Sewer Mains** – Sewer mains that are to be abandoned (taken out of service) shall be disconnected from the manhole that is to remain in service. A water-tight repair shall be installed in the unused inlet/outlet of the sewer manhole. Grout ends of abandoned pipe with cementitious grout.
- Q. Final Mainline Slope** – The last upstream section of any 8 inch mainline; pipe slope shall be a minimum of 0.6%.
- R. Common Drive**– In common driveways, the following shall apply unless otherwise approved by the City Engineer:
1. Four or less lots – services shall be extended from the sewer main in the right-of-way.
  2. Five or more lots (not usually allowed) – Sewer mains in the common drive will be private and are the responsibility of the HOA to maintain. Private sewer mains shall have manholes at the right-of-way boundary and at the end of the line. Manhole lids shall be labeled as “Private Sewer”.
- S. Pool Filter Backwash** - Backwash from a pool filter may be discharged to the sanitary sewer at a maximum rate of 50 gallons per min (gpm) unless greater discharge rates are requested and the Public Works Department can verify the available capacity through modeling. The backwashing setup must have permanent, non-adjustable, infrastructure (pipe diameter size, orifices plate, etc.) that minimizes backwash flow rates to 50 gpm or less. Flow limited by a valve or other adjustable controls will not be allowed. Discharge activities can occur at any time of day EXCEPT those times listed below:

1. Weekdays 6 - 8 AM and 8-10 PM
2. Weekends 10 AM – 12 PM and 8 – 10 PM

There shall be no direct connection between the pool backwash filter discharge and the pool itself that would allow the pool to be discharged to the sanitary sewer. Discharge of the pool into the sanitary sewer is strictly prohibited.

- T. Steel Casings- Steel casings are intended to protect the water main, protect the utility or road being crossed, and/or allow access for maintenance or replacement.
1. Steel casings shall be required in the following situations:
    - Open channel water crossings
    - Crossings of State Highways
    - Crossing of Railroad Tracks
    - Crossings of any utility where the owner of such utility may limit the City's ability to access the water main (such as irrigation district facilities)
  2. Design Standards:
    - a. Locate casings outside the footprint of bridges / culverts whenever possible
    - b. Casings crossing roadways must be extended far enough to provide easy access for maintenance, repair or replacement. (See Standard Drawing SW1)
  3. See Standard Drawing W15 for more information.

#### 5-7 PRIVATE SEWER MAINLINES:

Where mainlines are located on private property and serve only one parcel or serve parcels along common driveways, they shall be private and will require a plumbing permit. Onsite private mains shall be designed and constructed in accordance with all applicable Federal, State and local requirements. Private manholes shall be labeled "Private" on the manhole cover.

#### 5-8 MANHOLES AND CLEANOUTS:

Sewer manholes shall be placed at the intersections of all sanitary sewer lines; at all changes in pipe size and direction; at the end of any line terminating in a cul-de-sac; at the end of all +permanent lines. A manhole shall be installed at any temporary line more than 150 feet in length that serves more than four (4) Equivalent Residential Units (ERUs), or terminates at a property boundary where the adjacent property has a different ownership or is not a phase of the overall development. Care should be taken to avoid placement of manholes in wheel paths of travel lanes. The angle of a pipe into/out of a manhole, when measured from the upstream pipe to the downstream pipe, must be at minimum 90 degrees. Any angle less 90 degrees must be approved by the City Engineer.

- A. **Drop Manholes** – Drop manholes are not allowed without approval of the City Engineer (refer to City of Meridian Supplemental Specifications, Section 502, Part 3).
- B. **Clean-outs** – T-Type cleanouts may be used at points where the sewer line is terminated, but shall be continued to subsequent phases of a subdivision or other projects in the future (refer to City of Meridian Supplemental Specifications, Section 503, Part 2.B).
- C. **Sealed manholes with venting** should be utilized in areas of the collection system with a high probability of infiltration. This would include, but is not limited to,

manholes next to gutters, catch basins or other areas where stormwater will collect and regularly flow into the manhole lids.

#### 5-9    **SEWER SERVICE LINES:**

Sewer service lines shall conform to Idaho Standards for Public Works Construction and the National Plumbing Code, and shall be designed and constructed per the following guidelines:

- A.    **General Requirements** - The sewer service lines shall:
  1.    Extend from the collector sewer to the edge of public rights-of-way or edge of easement. New service lines shall not be located in residential driveways.
  2.    Be perpendicular to the sewer main line.
  3.    Have the location marked with an “S” at the back of sidewalk on the property line as a sewer service.
  4.    Sewer service lines through underground storm water infiltration beds or drainage swales are not allowed unless approved by the City Engineer. If approved, see the City of Meridian Supplemental Specifications to the ISPWC for sleeving requirements for services through storm water facilities.
- B.    Care shall be taken to avoid locating sewer service lines within 5 feet of street tree locations.
- C.    Sewer service lines shall not cross adjacent residential parcels.
- D.    **Sizing** –Sewer service pipe diameter shall be a minimum of 4 inches for residential. Commercial service sizes shall be designed to meet flow requirements but shall be 4 inches minimum.
  1.    A separate and independent sewer service line shall be provided for every lot, building, and/or structure.
  2.    No more than three 4-inch sewer service connections into a single pre-cast manhole base will be allowed.
- E.    **Material** – The sewer service pipe and connecting “T” or “Y” shall be PVC pipe, as identified in the City of Meridian Supplemental Specifications.
- F.    **Location** - When sanitary sewers are constructed as part of new subdivision improvements, a sewer service line shall be constructed to the approximate center of each lot.
- G.    **Depth** – The Design Professional shall verify the adequacy of the normal service line depth at the edge of easement or right-of-way to serve the intended parcel.
- H.    **Slope** – The National Standard Plumbing Code requires 4-inch service lines to have a minimum slope of 2% to the property line. Where sewer service line will have less than 4 feet of cover, a 1% slope may be used with the approval of the City Engineer. The slopes for sewer service lines 6-inches or larger can be engineered with slopes which achieve a minimum velocity of 2 feet per second with the pipe flowing full or half- full.
- I.    **Unused sewer service lines** – Unused sewer service lines shall be disconnected at the intersection with the main or manhole. Cut and cap the service at the tee or install a water-tight repair in the unused inlet of the sewer manhole. If capping the service at the mainline is not feasible, a CIP liner can be used to seal the inside of the mainline, and the service line cut at the back of the curb and capped.



**5-10 SPECIAL REQUIREMENTS IN DEVELOPED AREAS:**

In cases where developers are extending sewer mainlines through developed areas, these requirements apply:

- A. Property owners adjacent to or within 300 feet of the sewer extension project shall be contacted to gauge their interest in obtaining a sewer service.
- B. Property owners requesting a service, and willing to pay for the associated cost, shall have a sewer service installed as a part of the sewer mainline extension project.
- C. A property owner's request for service shall be honored wherever practicable.
- D. Parcels with two or more sources of sewage may have independent sewer services provided to each source.
- E. Redevelopment projects with existing sewer lines or services located in easements or alleys, shall relocate mainlines and services to public streets or rights-of-way whenever feasible.

**5-11 CORROSION PROTECTION:**

If required, a Geotechnical Report shall include results of a soil corrosivity test if there are any proposed metallic structures such as steel casing, ductile iron pipe, steel reinforcement, etc., along the alignment of the pipeline, and recommendations regarding corrosion protection.

**5-12 COMMERCIAL RV DUMPS**

Commercial RV Dumps are not allowed without prior approval of the City Engineer.

**5-13 PRETREATMENT REQUIREMENTS:**

Industrial and commercial wastewater discharges to the sanitary sewer system are regulated through the Industrial Pretreatment Program, which was established by Title 9, Chapter 2 of the Meridian City Code. The Pretreatment Program consists of permitting, inspecting, monitoring, and sampling of all applicable industries and businesses to ensure compliance with applicable local, state and federal requirements.

Any industrial or commercial business that discharges or plans to discharge process wastewater to the City of Meridian City sewer system must meet specific discharge standards as determined by the Pretreatment Program.

- A. **Grease Interceptors** – Grease interceptors conforming to Pre-Treatment Standard Drawing **S2** shall be installed to all grease-bearing wastewater discharge lines leading from sinks, drains and other fixtures or equipment in Food Service Establishments (FSE) that perform cooking operations from establishments including, but not limited to, those listed below:
  1. Restaurant, cafe, lunch counter, cafeteria
  2. Bar or club
  3. Hotel/Motel
  4. Hospital, retirement home, sanitarium
  5. Factory or school kitchen

The City of Meridian, as the local authority, has determined the minimum capacity size for grease interceptors is 1500 gallons, with double chambers and installed underground. Interceptors shall also meet the following requirements:

1. Interceptor shall be located outside of building in a location accessible to

- waste hauler service provider.
2. Install interceptor per manufacturer's specifications.
  3. Application of an interior protection coating to decrease grease vault interior material decomposition.
  4. All waste shall enter through inlet pipe only.
  5. The primary and secondary chamber outlet & inlet pipes shall have tee connections with open pipe tops to allow visual inspections of influent and effluent (wastewater) by City inspectors.
  6. Tee pipe length shall be 12-14 inches from the tank bottom, center baffle cross over tee pipe is usually recommended as per grease interceptor manufacturer's design.
  7. Chamber lids shall prevent odors with a built-in handle or notched side to insert a tool to allow easy access for lid removal. Temporary sealant type material is only allowed in lid holes to eliminate odors, bolts to secure lids are recommended to ensure an air-tight seal.
  8. All surface water shall drain away from manholes.
  9. Each business establishment for which a grease interceptor is required shall have an interceptor which shall serve only that establishment.

Interceptors shall be considered part of the building plumbing, therefore part of the upper sewer service line, subject to maintenance by the Owner.

- B. Oil/Sand Interceptors** – An Oil/Sand Interceptor conforming to Pre-Treatment Standard Drawing S3 shall be installed for any type of business having the potential of producing oil and sand or grit waste, including but not limited to those listed below:

1. Auto Body Repair Shop
2. Auto Repair Shop
3. Car Wash
4. Commercial Laundry/Laundromat
5. Outdoor vehicle wash pads (pad shall be designed to not allow storm water from surrounding area to enter system)

The City of Meridian as the local authority, has determined the minimum capacity size for Oil/Sediment interceptors is 1500 gallons, with double chambers and installed underground. Interceptors shall also meet the following requirements:

1. Interceptor shall be located outside of building in a location accessible to waste hauler service provider.
2. Interceptor must be installed per manufacturer's specifications.
3. All waste shall enter through inlet pipe only.
4. The primary and secondary chamber outlet & inlet pipes shall have tee connections with open pipe tops to allow visual inspections of influent and effluent (wastewater) by City Inspectors.
5. Tee pipe length shall be a minimum of 12-14 inches from the tank bottom; center baffle cross over tee pipe is usually recommended as per grease interceptor manufacturer's design. Field adjustment of pipe lengths may be allowed as determined by a City Pretreatment Inspector.
6. Chamber lids shall prevent odors with a built-in handle or notched side to

insert a tool to allow easy access for lid removal. Temporary sealant type material is only allowed in lid holes to eliminate odors, bolts to secure lids are recommended to ensure an air tight seal.

7. All surface water shall drain away from manholes.
8. Each business establishment for which an Oil/Sand Interceptor is required shall have an interceptor which shall serve only that establishment.

Interceptors shall be considered part of the building plumbing, therefore part of the upper sewer service line, subject to maintenance by the Owner.

C. **Other Requirements by Facility Type** - The following are examples of some industrial/commercial facilities regulated by the Industrial Pretreatment Program per the Pretreatment Standards as identified in Meridian City Code Title 9, Chapter 2 Sewer Pretreatment:

1. Dental Offices
  - o Silver recovery system for x-ray wastewater.
  - o Mercury amalgam separator is recommended.
2. Car Washes - No solvent discharges allowed. Car washes are required to have a wash water recycling system.
3. Dry Cleaning Shops - Still bottom water evaporator for solvent recovery. No discharge of perchloroethylene allowed.
4. Film processing and Photo Development Labs– Silver recovery system.
5. Commercial Laundry/Laundromats – Solvent recapture and high temperature mitigation.
6. Machine Shops – Recapture of metalworking fluids and solvents as no discharges allowed.
7. Radiator Repair Shops – Closed-loop process cleaning system with sealed holding tank. Zero Discharge Permit is required with disposal service identified.

D. **Approved Exception to the In-Ground Grease Interceptor** – In certain cases as determined by the City of Meridian’s Pretreatment Program, a suitable portable unit may be approved on a very limited basis with specific requirements. An Electro-Mechanical Unit or Automatic Grease Interceptor (AGI) may be installed to the facilities clean up sink. This unit shall be of the type designed to mechanically remove fats, oils and grease (FOG) automatically. Unit shall have a timer device to activate contained grease discharge in a separate container for proper disposal. Passive grease traps are not allowed in a new or remodeled construction activity.

E. At the discretion of the Publicly Owned Treatment Works’ (as defined in MCC 9-2-1-4) superintendent or designee; enter into a written agreement or permit with the City of Meridian establishing comparable best management practices MCC Title 9, Chapter 2 Sewer Pretreatment 9-2-2- 1 D 2.

**-END OF SECTION-**

## SECTION 6 STREET LIGHTING

### **6-1 SECTION SUMMARY:**

This section contains guidance and requirements for street lights and the development of street light plans. Guideline drawings are included at the end of the section. Please refer to the drawings as well as the section standards when designing development street lighting.

### **6-2 APPLICABLE STANDARDS:**

The requirements listed below shall apply to the design of street lighting. Conflicts between these requirements shall be resolved on a case-by-case basis.

- A. All applicable standards as listed in Section 2-2
- B. ANSI/IES RP-8-14 Roadway Lighting
- C. AASHTO Roadway Lighting Design Guide

### **6-3 STREET LIGHTS REQUIRED:**

- A. Street lights will be required for all developments within the urban area, along all streets and pathways offered for dedication, including existing streets bordering the development unless exempted by Section 6-4 below. In addition, street lights may be required for lots and parcels containing existing structures which are being improved or altered, depending on the nature and extent of the work. Illustrations of street lights generally required are shown on Design Standards Drawing 6A.
- B. Existing streetlights along the developed, improved or altered parcel shall be upgraded to meet the current city standards and specifications. See Sections 6-8 and 6-9.

### **6-4 STREET LIGHTS NOT REQUIRED:**

Street lights will not be required under the following circumstances:

- A. For planned developments, residential, commercial, and industrial developments where internal streets are not offered for dedication, a street lighting system will not be required for the internal non-dedicated streets, but shall be provided by the developer on external public street frontage.
- B. In areas where site conditions preclude the installation of street lights adjacent to the development, the owner or developer will be required to deposit monies sufficient to design, install, and inspect street lights under the direction of the Meridian Public Works Department. These lights will be installed when site conditions adjacent to the development become more favorable or in alternate locations in the general vicinity of the development.

### **6-5 DEVELOPER'S RESPONSIBILITY:**

- A. Existing street lights which must be relocated or repositioned as a result of the construction of new streets or driveways into a development are the responsibility of the developer to relocate.
- B. Any new services, including those with a step-down transformer, which are required as a result of the modification of an existing utility service pedestal, are the

- responsibility of the developer.
- C. The developer is responsible to ensure that power remains to the existing street light system until the new street light system to replace it is complete and functioning correctly.
  - D. The developer is responsible for all costs associated with creating a fully functional lighting system.
  - E. The developer, or his legally authorized representative, is responsible for providing as-built record drawings of the street light installation as described in Section 1102 Part 1 of the Supplemental Specifications.

**6-6 CERTIFICATES OF OCCUPANCY:**

- A. Lack of a functional street lighting system at the time certificates of occupancy are requested shall be grounds for denial of such certificates.
- B. A finalized electrical permit, issued through the City of Meridian Building Division for street light system work, is required before the City will assume energy costs and authorize Idaho Power to energize the street light system.

**6-7 PLAN DETAILS:**

- A. Plans shall show and identify all street lights to be installed, all existing lights in the project vicinity and all applicable provisions and details specified in these standards.
- B. The street lighting plan should be included in the overall development plan set and shall be a stand-alone plan containing the following information:
  1. A vicinity map or equivalent
  2. Utility poles and public easements
  3. Names of adjacent subdivisions
  4. Names of streets, and if streets are public/private
  5. Block and lot numbers if available
  6. Intersecting property lines of adjacent properties
  7. A “Symbols” legend conforming to Design Standards Drawing 6A
  8. A North arrow and appropriate scale (1”=10’ to 1”=100’)
  9. All existing street lights on both sides of any streets
  10. Street Lighting Standard Notes located on the City’s website Land Development Services section; Standard Notes for Development Projects

**6-8 DESIGN REQUIREMENTS:**

Street lighting shall be designed in conformance with these standards and the current editions of the ISPWC and the City of Meridian Supplemental Specifications to the ISPWC. Average maintained illuminance or luminance levels, uniformity, and veiling luminance ratios shall be designed to meet the levels specified in the ANSI/IES RP-8-14 or the AASHTO Roadway Lighting Design Guide. Data and calculations verifying compliance of the above requirements shall be submitted for review, or the Design Standards included herein shall apply.

- A. Avoid excessive light trespass into neighboring residences. Utilize IES Type II distribution patterns and/or house-side shields where light trespass could be an issue.
- B. Coordinate street light locations on design plans to avoid conflicts with tree locations

identified in the landscaping plans.

## 6-9 **STREET LIGHT DESIGN DETAILS:**

Design details for street lights are as follows:

- A. **Intersections** – Intersections shall have at least one street light; this includes large commercial driveways. Intersection street light locations and the number required shall conform to Design Standards Drawings 6D, 6E, and 6F.
- B. **Cul-de-sacs** – All cul-de-sacs shall have a street light within the ‘bulb,’ as shown in Design Standards Drawing 6E.
- C. **Micro-paths & Multi-use Pathways** – Street lights shall be placed at both ends of micro-paths and multiuse pathways. Bollard type lighting may be required along the length of the pathway per UDC 11-3A-8. In the case of properties abutting State Highway 55 (Eagle Rd), decorative pathway lighting may be required per UDC 11-3H-4C3.
- D. **Spacing** – Maximum street light spacing shall be measured along roadway centerline and shall conform to Design Standards Drawing 6C. Maximum spacing for downtown historical poles shall be 80 feet.
- E. **Street Light Poles** – The position of street light pole bases shall conform to the Supplemental Specifications. Poles located along State Highways, within the clear zone, shall have breakaway bolts.
  - 1. All Type 1 street light poles shall be round steel powder-coated black per the Supplemental Specifications, and conform to Supplemental Specifications Drawing T1 unless otherwise directed by the City of Meridian Transportation & Utility Coordinator.
  - 2. A davit pole may be approved by the City Engineer in place of Type 1 poles in instances of overhead utility line conflicts.
  - 3. All Type 2 street light poles shall be square steel with bronze polyester coating and conform to the Supplemental Specifications.
  - 4. Historical poles shall be used in the Downtown Meridian Redevelopment area and shall conform to the Supplemental Specifications.
- F. **Luminaires** – Luminaires shall be LED fixtures that are on the approved fixture list (see Design Standards Drawing 6C, note 2), or have been pre- approved in writing by the City’s Transportation and Utility Coordinator.
- G. **Service** – All street light systems shall have underground electrical services provided. Service voltage shall be 120 or 240 volts only.
  - 1. The City Engineer or authorized representative may approve overhead service in unusual areas when justification is given why service cannot be provided underground.
- H. **Metering** – All lights on arterial and collector roads (except those fully contained within a residential subdivision) shall be metered per Idaho Power requirements. The meters shall be contained in a service pedestal conforming to Division 1100, section 1102 of the Supplemental Specifications.

Where a metered system is required, new and existing developments shall install conduit with one No. 10 stranded pullwire from the last light on each end of the system to the adjacent property line on a stubbed street, where the adjacent property has no existing street light system. This will allow for the continuation of the street

lights when the adjacent property is developed.

**I. Installation of Non-Standard Street Lights –**

1. Where standard Type 2 lights are required, the City may approve the use of non-standard street lights (e.g. decorative street lights not specified in the City Standards) with a written agreement between the City and Developer, releasing the City from maintenance responsibility. The City will accept responsibility for the energy cost of these street lights. A sample agreement can be obtained from the Public Works Department.
2. When the use of non-standard street lights is approved by the City, the developer shall be required to submit design calculations for the pole spacing including photometric calculations and plots showing the design meets the minimum light levels and other criteria of these Design Standards. The City reserves the right to deny use of specific light pole models.

**6-10 LAYOUT DESIGN PROCEDURE:**

The purpose of the layout process is to establish an overall uniform street light system meeting minimum requirements. The design procedure for the street light layout is as follows:

- A. Identify the nearest control points (intersections, 90 degree bends in streets, large driveways, existing street lights) in each direction of travel from the street light locations being planned. Determine the location of the street lights at the control points in conformance with Section 6-9 above.
- B. Identify any existing street lights situated between the intersections.
- C. Determine the distance between control points on either end of the design area.
- D. Divide the distance into equal spaces between lights not to exceed the maximum spacing requirements specified in Section 6-9 above.
- E. Compare the light locations to intersecting property lines, driveways, micro-paths/pathways, and other obstructions as follows:
  1. If the location falls close to a property line and it can be adjusted to the property line within the maximum spacing allowed, then the adjustment should be made.
  2. Generally, street lights should be situated at lot corners for residential lots and parcels with minimal frontage (75 feet or less). The light spacing may have to be unbalanced, with additional lights being added, to attain this and still comply with the maximum spacing allowed.
  3. Street light locations shall be adjusted to miss driveways, existing utility poles, trees, and other obstructions by the clearances shown in Supplemental Specifications drawing T8.
- F. Where street light pole installations cannot be reasonably accommodated due to existing utility-owned poles with overhead electric power lines, the serving utility company should be contacted to determine if street lights can be installed on the existing poles.
- G. On all streets except for collectors with metered lights, lights should be staggered on either side of the road to create better uniformity (i.e. lights on one side of the road should be located approximately halfway between lights on the opposite side). In some cases, the layout may need to be one-sided due to utility conflicts. If a single sided layout is required, it will be communicated to the designer during the pre-plat

or Certificate of Zoning Compliance application process.

- H. The layout for collector streets with metered lights should be one-sided to reduce the amount of conduit, wire and service pedestals required.
- I. For metered lights (one-sided) layouts; the streetlights shall be installed on the development's side of the street unless an alternative is approved, in writing, by the City Engineer or his authorized representative.

### **Streetlight Drawings – Next 6 pages**

DRAFT



# SYMBOLS

PROPOSED

EXISTING

u



TYPE 1 STREET LIGHT

TYPE 2 STREET LIGHT

U I



JUNCTION BOX

SERVICE POINT JUNCTION BOX



CONDUIT

l:il

SERVICE ENCLOSURE (CAN)

0

U.G. UTILITY SERVICE

f;j\_

TRANSFORMER

--0--



UTILITY POLE

City Engineer

CITY OF MERIDIAN  
PUBLIC WORKS DEPARTMENT

STREET LIGHTING  
POLES & SYMBOLS

SCAW: NO:IE E:WN:ru...  
DATE: M40t5 I OWG: 1SA

## STREET CLASSIFICATIONS

STREET	FROM -TO	PEDESTRIAN CLASS
AMITY	MCDERMOTT-CLOVERDALE	LOW
BLACK CAT	CHINDEN • LAKE HAZEL	LOW
CHERRY	MCDERMOTT - MERIDIAN	LOW
CHERRYFAIRVIEW	LINDER- CLOVERDALE	MED
CHINDEN, '2}126	STAR • EAGLE	LOW
COLUMBIA	MERIDIAN - CLOVERDALE	LOW
EAGLE, SR55	MCMILLAN - OVERLAND	MED
EAGLE	OVERLAND - LAKE HAZEL	LOW
FRANKLIN	MCDERMOTT - CLOVERDALE	MED
LINDER	CHINDEN - COLUMBIA	LOW
LAKE HAZEL	MCDERMOTT - CLOVERDALE	LOW
LOCUST GROVE	CHINDEN • USTICK VICTORY - COLUMBIA	LOW
LOCUST GROVE	USTICK - VICTORY	LOW
MCDERMOTT	OVERLAND - LAKE HAZEL	LOW
MCMILLAN	STAR - LOCUST GROVE	LOW
MCMILLAN	LOCUST GROVE - EAGLE	LOW
MERIDIAN	CHINDEN - USTICK	LOW
MERIDIAN	USTICK -OVERLAND	MED
MERIDIAN SR69	OVERLAND - COLUMBIA	LOW
OVERLAND	TENMILE - CLOVERDALE	LOW
PINE	TEN MILE - LOCUST GROVE	MED
PINE	LOCUST GROVE - CLOVERDALE	MED
TENMILE	CHINDEN - LAKE HAZEL	LOW
USTICK	STAR - CLOVERDALE	LOW
VICTORY	MCDERMOTT • CLOVERDALE	LOW

City Engineer

CITY OF MERIDIAN  
PUBLIC WORKS DEPARTMENT

MERIDIAN STREET CLASSIFICATIONS

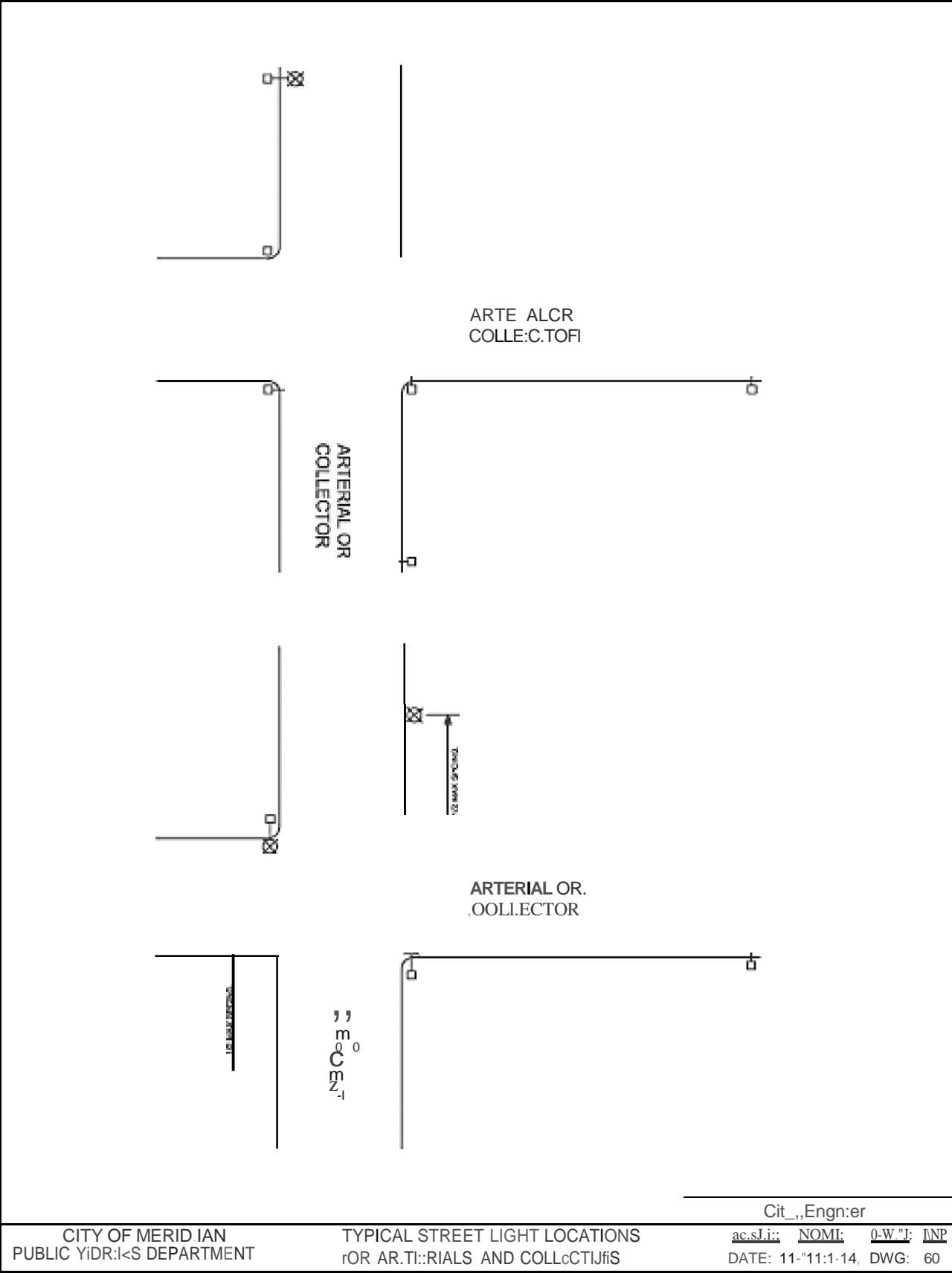
SCALE: NONB | D/N.N. | IBC  
MTI; MI-Xli III | C'NG; rjeJ

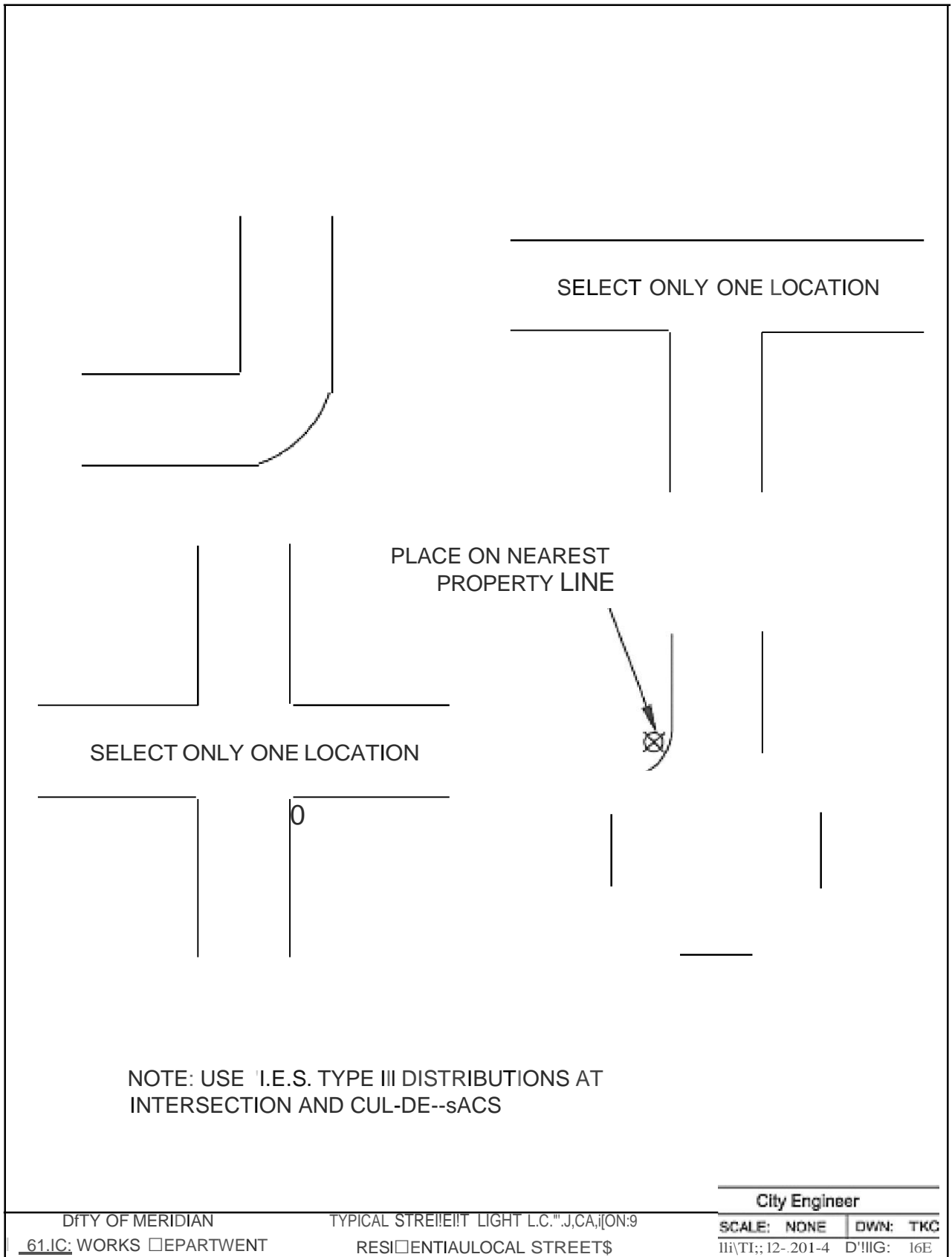
STREET WIDTH ft	STREET TYPE	NOMINAL MOUNTING HEIGHT	STANDARD MAST ARM LENGTH	MAXIMUM SPACING (Suggested)	MAXIMUM SPACING (On Sidewalk)
8-15 ft		35'	15'	.250"	NA
16-24 ft	1	35'	12'	30D'	.200
25-34 ft	1	2, (1'	B'	22D"	221'
35-44 ft	2	25' or 30'	NA or 12'	220' or 21r,	110' or 270'
45 ft or greater	2	.25	NA	.28D"	260"

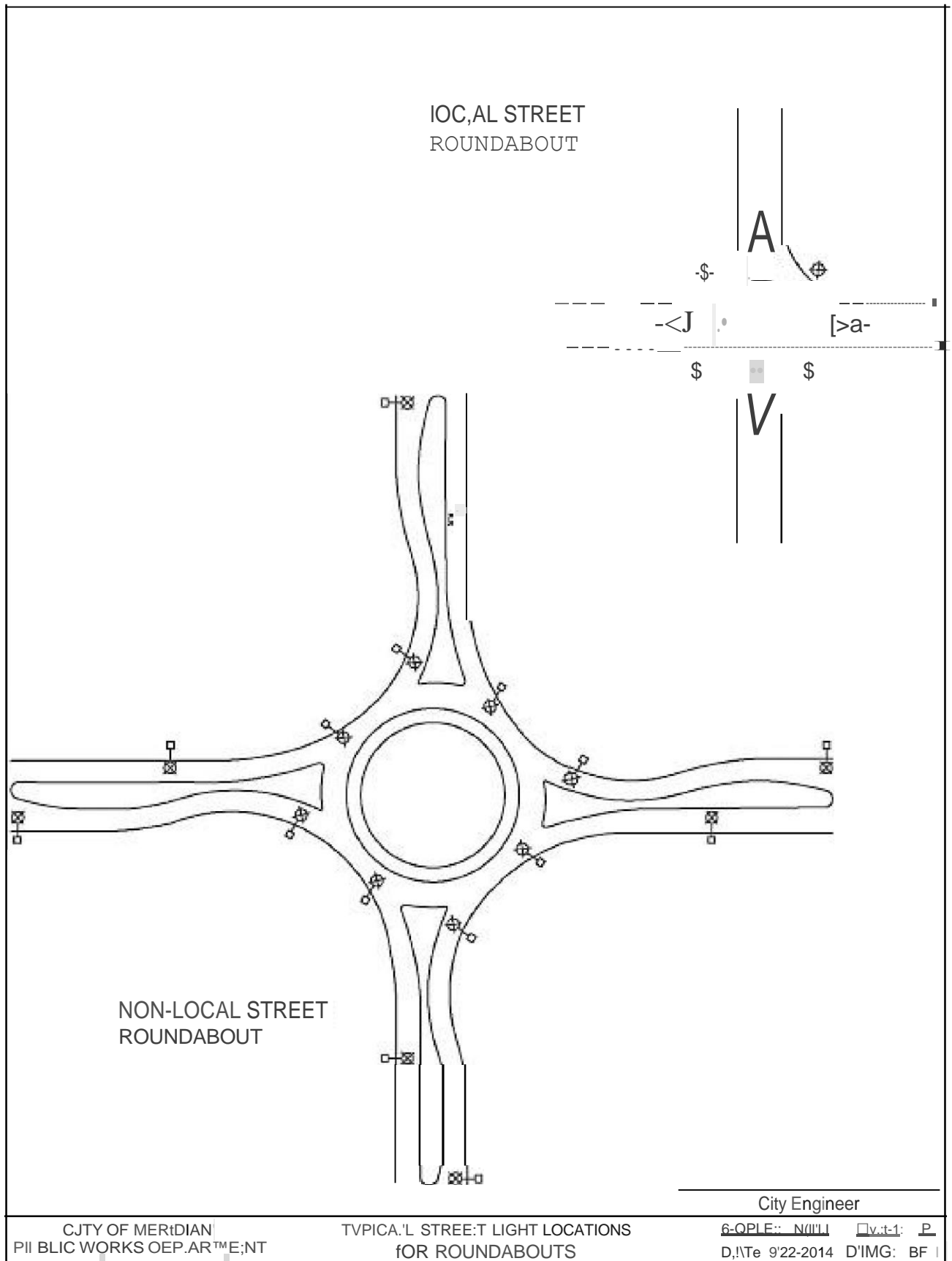
NOTES:

- SPACING ON ROAD-5 65 FT AND WIDER ACCOUNT FOR DISTANCE BETWEEN POLES ON ONE SIDE OF ROADWAY ONLY
- MOUNTING HEIGHTS ARE LISTED RESPECTIVELY
- SEE: ORAWIG 6A

1. USE ROADWAY WIDTHS AS PLANNED TEN YEARS FROM THE ANTICIPATED CONSTRUCTION DATE PER THE ACHID CAPITAL IMPROVEMENT PLAN
2. SEE APPROVED FIXTURE USE ON THE LAND DEVELOPMENT SERVICE PAGE OF THE CITY WEBSITE FOR A LIST OF MODELS APPROVED FOR EACH ROADWAY CLASSIFICATION
3. FORMULAS USED TO CALCULATE SPACING SHALL BE REDUCED BY A LIGHT LOSS FACTOR OF 0.86 FOR LED LAMPS AND 0.71 FOR OTHER LIGHT SOURCES
4. SPACING MAY BE ADJUSTED 10% TO ALLOW FOR DRIVEWAYS







City Engineer

CITY OF MERIDIAN  
PUBLIC WORKS DEPARTMENT

TYPICAL STREET LIGHT LOCATIONS  
FOR ROUNDABOUTS

DATE: 05/11/24  
DRAWN BY: P  
DATE: 05/22/2014 DIMS: BF

**-END OF SECTION-**

## SECTION 7 GRADING AND DRAINAGE

### 7-1 SECTION SUMMARY:

This section contains general, technical, and submittal requirements for the design of grading and drainage for a development project.

### 7-2 APPLICABLE STANDARDS:

The requirements listed below shall apply to the design of grading and drainage. Conflicts between these requirements shall be resolved on a case-by-case basis.

- A. All applicable standards as listed in Section 2-2
- B. Current Construction Storm Water Management Program (CSWMP) Manual for City of Meridian Construction Projects
- C. Policy Manual, Sections 8000, 8200, 8300; Ada County Highway District (ACHD) (Current Edition)
- D. Catalog of Storm Water Best Management Practices for Idaho Cities and Counties, Idaho Department of Environmental Quality (IDEQ) (Current Edition)
- E. National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities (CGP) , Environmental Protection Agency (Current Edition)
- F. Meridian City Code (MCC), Title 11 - “Unified Development Code” (UDC), Chapter 3

### 7-3 GENERAL REQUIREMENTS:

The following sub-sections identify the general requirements for grading and drainage standards. These provisions do not apply to an individual single-family home construction site/lot.

Additionally, all projects impacting the Right-Of-Way (ROW) shall obtain approvals from all necessary agencies including, but not limited to, the Ada County Highway District (ACHD) and the Idaho Transportation Department (ITD) as required by those agencies governing the ROW.

- A. **Grading Requirements** - Site grading shall not create or contribute to flooding, erosion, increased turbidity, siltation, or other forms of pollution in a water course. When filling, excavating, dredging, or moving earth material alters the existing grade of a site the owner/developer shall protect adjoining properties during and after construction. The tops and toes of graded slopes shall be set back from project boundaries and structures as required by generally accepted best practices in order to ensure safety, provide adequate foundation support, and prevent damage resulting from water runoff or erosion.

For individual lot grading within a development refer to the most currently adopted International Residential Code, International Building Code and any COM Local Amendments.

- B. **Drainage Requirements, General** - Per Section 11-3A-18 of the Unified Development Code (UDC), all developments are required to build adequate drainage facilities.
  1. The City of Meridian reviews grading and drainage plans and related

improvements for all development projects which include, but are not limited to, commercial and industrial development, parking lot construction or expansion, private road construction, and additions to existing development that may affect the generation or disposal of storm water. Off-street parking and private roads or accesses associated with multi-family residential projects are also subject to the requirements of this section.

2. The City does not exercise authority over the design, installation, operation, or maintenance of storm water conveyance, storage, or disposal systems serving public right-of-way.
- C. **Offsite Discharges** - It is the Design Professional's responsibility to obtain approvals from any applicable agency for discharges of storm water off-site. Conditions of approval contained in a project's Conditional Use Permit, Development Agreement, or other documents approved by the City Council may preclude off-site discharges regardless of other agency approvals.

#### 7-4 SUBMITTAL REQUIREMENTS:

- A. **Grading & Drainage Plans** – In addition to the requirements of section 3 of this manual, the grading and drainage plan must include, at a minimum, finished pad elevations; finished grade flow direction arrows; location, type, and size of conveyance systems; disposal facilities; and erosion and sediment control Best Management Practices (BMP) design and details. Existing and proposed water, sewer, and irrigation improvements must also be shown on these plans.

Grading and drainage plans must be stamped by a Professional Engineer or Landscape Architect licensed in the State of Idaho. Unstamped, unsigned plans will not be accepted or reviewed.

- B. **Drainage Calculations** - Drainage calculations must be submitted with the grading and drainage plan that show the tributary area, design storm return frequency and duration, runoff volume, peak discharge, storage volumes, peak outflows and any other necessary calculations. These plans must be stamped by a Professional Engineer or Landscape Architect licensed in the State of Idaho. Unstamped, unsigned calculations will not be accepted or reviewed. Drainage calculations shall conform to the latest revision of Sections 8000 and 8200 of the *ACHD Policy Manual*.

Submit the calculations in a professional and legible manner. The calculations must list the project title, the project address, date of last revision, and sheet number.



- C. **Other Required Documents** – If the storm drain system for the proposed development includes discharging storm water to facilities owned by drainage districts, irrigation districts, adjacent developments, or property not a part of the proposed development, a fully executed permit or agreement to discharge offsite must be submitted to the City prior to plan approval. This does not apply to systems owned or operated by ACHD as ACHD would be the approving authority.

The designer shall provide a copy of a soils or geotechnical report indicating existing seasonal high ground water elevations, soil classifications and percolation rates. The report shall be prepared by a geotechnical engineer, hydrogeologist, or professional engineer licensed in the State of Idaho.

Provide specifications for proper long-term Operation and Maintenance including inspection checklist, inspection frequencies and recommended maintenance tasks necessary to ensure operation according to the original design.

**7-5 TECHNICAL REQUIREMENTS:**

- A. **General** - All storm water generated on development projects shall be retained and disposed of within the development site. Storm water shall not be discharged to adjacent properties or public right(s)-of-way. In some cases, storm water may be discharged to an existing drainage way or drainage structure if written approval of the discharge is given by the agency having jurisdiction over the drainage way. Written approval must be provided to the City of Meridian. All storm water improvements and BMPs shall conform to the latest revision of the *Catalog of Storm Water Best Management Practices for Idaho Cities and Counties*, or approved equivalent.
- B. **Materials** - Unless otherwise specifically approved, all materials used in the construction of storm water conveyance, storage, or disposal improvements shall be as specified in the most current edition of the ISPWC and City Supplemental Specifications.
- C. **Landscaping** - The City encourages integration of storm water management with landscaping. While landscaping requirements cannot be altered to accommodate certain storm water management techniques, innovative and alternative site planning which integrates both aspects will be evaluated on a case-by-case basis.
- D. **Storm Water Management Integration** - The Design Professional shall utilize storm water integration as provided in UDC section 11-3B-11 where appropriate when designing landscaping requirements of projects.

**7-6 STATEMENT OF COMPLIANCE:**

The design engineer, architect, or landscape architect must submit a letter of compliance to the City of Meridian Public Works Department indicating that the project has been built in accordance with the submitted design plans, meets these minimum standards and O and M Manual was provided to owner prior to requesting a certificate of occupancy for any building or final acceptance of any development project.

**-END OF SECTION-**

## SECTION 8 PRESSURE AND GRAVITY IRRIGATION

### 8-1 SECTION SUMMARY:

This section contains guidance and requirements for the following: pressure irrigation plan sheets, pressure irrigation system design & sources, gravity irrigation, and regulatory permitting

### 8-2 APPLICABLE STANDARDS:

The requirements listed below shall apply to the design of pressure and gravity irrigation systems. Conflicts between these requirements shall be resolved on a case-by-case basis.

- A. All applicable standards as listed in Section 2-2
- B. Meridian City Code (MCC) - Title 9, Chapter 1 “Water Use and Service” and Chapter 3 “Cross-Connection Control”
- C. Meridian City Code(MCC) Title 11 “Unified Development Code”(UDC), Chapter 3

### 8-3 GENERAL REQUIREMENTS FOR PRESSURE IRRIGATION:

All development plans shall include a plan sheet depicting the pressure irrigation (PI) system layout and design. Pressure irrigation systems will meet the requirements of MCC 9-1-28.

Along with the layout sheet, the following materials must be submitted:

- A. If connecting to an existing system, a letter of approval from the entity that owns the system (Homeowner’s Association or Irrigation District)
- B. Statement explaining who will own the new system

The City has adopted the standard specifications and drawings prepared by the applicable Irrigation District that the system will be built in. At a minimum, these requirements must be adhered to whether or not the system is to be maintained and operated by that Irrigation District.

A letter from the Design Professional will be required stating that the system operates and is constructed according to the approved plan.

Each independent HOA within a development is encouraged to have their own single point connection and isolation valves for backup (shoulder season) irrigation. This will allow each HOA to decide if they will or will not activate the backup connection when surface water is unavailable.

If the pressurized irrigation system is owned and operated by an irrigation district, the HOA will also have to obtain the irrigation district’s approval.

#### **8-4 PRESSURE IRRIGATION SYSTEM DESIGN**

##### **A. Main Location -**

1. Pressure irrigation mains should be designed in the proper corridors along south and west property lines. Mains shall be designed within the standard rear and side lot line utility easements or common lots. Mains shall not be designed along the front lot lines unless approved by the City Engineer and the owner/operator of the irrigation system.
2. All pressure irrigation main crossings of public rights-of-way, private roads, access roadways/driveways shall be sleeved (C-900) and have valves located no further than 10 feet outside of the right- of-way or road/driveway.

##### **B. Meters and Backflow for Municipal Connections -**

1. Water meters for municipal water single point (shoulder season) connections to the pressure irrigation system shall be located in common areas only. Meter location, size, and meter setter size shall be specified on the plans and designed per City of Meridian Supplemental Specifications. When a common area is not available the location shall be resolved by a case-by-case basis.
2. Cross-connections of individual lots in a subdivision between pressure irrigation and municipal water are not allowed. If a year- round source of water is not provided for the PI system, the developer must provide a backup water source for shoulder season watering (October 15 to April 15).
3. If the developer proposes to install a single point (shoulder season) connection to the City of Meridian domestic water system, an approved backflow prevention device must be installed and shall be noted on the plans. A note shall be added to the plans stating that the reduced pressure backflow assembly must be approved by the State of Idaho, Department of Water Quality and the Water Division of the City of Meridian Public Works Department. Single points of connection may be provided for each separate system, subdivision, phase, or as appropriate for hydraulic performance and administration.

#### **8-5 PRESSURE IRRIGATION SYSTEM SOURCES**

- A. Surface water shall be utilized as the primary source of irrigation water if available. All systems must have a year-round source. If City municipal water is utilized for a year-round / backup source, a single point connection between the municipal system and pressure irrigation system is required. For design of this connection, see the City of Meridian Supplemental Specifications.
- B. Pressure irrigation plans shall show the intended point of delivery for surface water and point of connection to municipal water or irrigation well. Irrigable square footage shall be included for assessments.
- C. If pressure irrigation system causes changes to a gravity irrigation system that will affect downstream users, the developer is obligated to follow Title 42, Chapter 1 of Idaho State Code – 42-109.

#### **8-6 GRAVITY IRRIGATION**

- A. All open gravity irrigation ditches shall be tiled, per MCC Title 11 (UDC).
- B. Pipe diameter, length, slope and cleanout boxes/manholes shall be noted on the

plans. Spacing of boxes/manholes shall not exceed 400 feet with a minimum inside dimension of 4 feet by 4 feet. Irrigation box dimensions may be smaller if less than 2 feet deep. Spacing of boxes/manholes may exceed 400 feet if entity responsible for maintenance can verify they are capable of cleaning irrigation lines longer than 400 feet.

- C. Any modifications to existing gravity irrigation systems require the applicable irrigation district's approval of the design. It is the developer's responsibility to get the irrigation district's approval for modifications made to an existing irrigation facility owned and operated by an irrigation district. Written approval from the irrigation district must be provided to the City of Meridian.
- D. If downstream users will be affected by changes to a gravity irrigation system, the developer is obligated by State Code Title 42, Chapter 1, Article 42-109 to ensure all downstream users receive their share of water at pre-development times and quantities.

#### 8-7 **REGULATORY PERMITTING**

- A. It shall be the responsibility of the Developer to obtain compliance with any Section 404 permitting that may be required by the Army Corps of Engineers.
- B. It shall be the responsibility of the Developer to obtain compliance with any National Pollution Discharge Elimination System (NPDES) permitting that may be required by the Environmental Protection Agency (EPA).

#### 8-8 **OPERATIONS AND MAINTENANCE MANUAL REQUIREMENTS**

A complete and thorough operations and maintenance manual should be developed for the irrigation system and turned over to the HOA when the development has been completed.

**-END OF SECTION-**

**SECTION 9  
CLASS 'A' RECYCLED WATER SYSTEM**

(This Section has been removed)

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## SECTION 10 STREETSCAPES

### **10-1 SECTION SUMMARY:**

This section contains guidance and requirements for the following: streetscape site plan drawings, standards, and design.

### **10-2 APPLICABLE STANDARDS:**

The requirements listed below shall apply to design of any streetscapes. Conflicts between the requirements of these streetscape improvement standards shall be resolved on a case-by-case basis.

- A. All applicable standards as listed in Section 2-2
- B. Meridian City Code (MCC) - Title 8, Chapter 1 “City Core Streetscape”
- C. Meridian City Code (MCC) - Title 11 “Unified Development Code” (UDC), Chapter 3
- D. Downtown Meridian City Core Street Cross-section Master Plan
- E. Current Meridian Parks and Recreation Department Specifications
- F. American Association of Nurserymen Standards

### **10-3 REQUIREMENTS FOR STREETS WITHIN PUBLIC RIGHTS-OF-WAY:**

The requirements of this section pertain to streetscape elements for which the City has authority. Geometric and pavement design of public roadways are governed and approved by the agency responsible for that specific right-of-way, either the Ada County Highway District (ACHD) or the Idaho Transportation Department (ITD).

### **10-4 FEDERAL AND STATE HIGHWAYS:**

For development along interstate and state highways (including, but not limited to, State Highway 69, State Highway 55, State Highway 20-26, and Interstate 84), see UDC section 11-3-H.

### **10-5 ADA COUNTY ROADWAYS EXCLUDING THE CITY CORE:**

For development along roadways maintained by the Ada County Highway District outside the City Core, see UDC 11-6-C. See Drawing 10-A (attached) for a map of the City Core.

### **10-6 CITY CORE STREETSCAPES:**

Within the City Core (see Drawing 10-A), the City of Meridian has specific standards and requirements for development and maintenance of streetscape improvements. When required, streetscape improvements along all public roadways within the City Core shall comply with the following standards:

- A. **Plan Requirements** - The City requires site plan drawings for any proposed improvements.
  - 1. **Requirements of Site Plans:** The following shall be required on the plan:
    - A vicinity map or equivalent
    - Demarcation of property lines and Ada County Highway District right-of-way

- Location of existing improvements including those adjacent to neighboring properties, called out with descriptions
  - Location of existing utilities and utility services
  - All proposed paving, tree grates, trees, street furnishings, and other improvements
  - A north arrow and standard architectural or engineering scale
  - A legend indicating any symbols used in plans
  - Indicate adherence with any spacing requirements, existing spacing plans, or streetscape improvement relocation requirements
2. Requirements for Spacing Plans: A spacing plan for the street extending to the block limits shall be required for installation of street trees and street lights when a spacing plan does not already exist on file with the City. The following shall be required on the spacing plan:
- Demarcation of property lines and Ada County Highway District right-of-way for the full street length
  - Location of existing streetscape improvements and impediments for the full street length
  - Adherence with Design of Layout requirements for street lights and street trees along full street length (see section 10-6-D of this document)
  - A north arrow and standard architectural or engineering scale
  - A legend indicating any symbols used in plans
- B. **Design Standards** - Streetscape elements shall be designed by an architect, landscape architect, or civil engineer in conformance with these standards and ISPWC Standard Specifications.
1. Streetscape Requirements: Streetscape improvements shall, at a minimum, be installed in the immediate frontage of the subject property.
  2. Surface Material and Treatment: Standard finished surface materials are required as set by each zone of the streetscape, as defined in MCC 8-1-1.
    - Street Furnishing Zone – Concrete unit pavers, per Meridian Parks and Recreation Department Specifications, shall be the finished surface material within the Street Furnishing Zone.
    - Clear Zone – Concrete sidewalks shall be the finished surface material within the Clear Zone.
    - Use Zone – Enhanced concrete paving shall be the finished surface material within the Use Zone. Enhanced concrete paving shall be scored or colored to distinguish it from the Clear Zone.
  3. Street Furnishings: All street furnishings shall conform to MCC 8-1. Street lights shall conform to Section 6 of this document. Benches, trash receptacles, bicycle racks, and other approved furnishings shall conform to Meridian Parks and Recreation Department Specifications. Improvements such as lights, tree grates, newsstands, and planters are required to be spaced four feet (4') or more from other streetscape improvements. Newsstands may be placed adjacent to other newsstands, provided they are a minimum of four feet (4') from other streetscape improvements.

4. Street Trees: Class III trees shall be placed in tree grates at approximately 32' spacing. Trees shall be placed to avoid conflicts with alleys and street lights. Where Class III trees may conflict with overhead power lines, tree selection shall be approved by the City Arborist. There shall be a minimum of 6 trees per block where possible. Trees shall be installed per the Meridian Parks and Recreation Department Specifications.
  5. Tree grates: Tree grates shall conform to the Meridian Parks and Recreation Department Specifications.
- C. **Specific Standards** - Within the City Core, streets running north or south and east or west have standards specific to each street direction. Main Street has specific standards which deviate from other north/south roads.

Use zones are defined in MCC 8-1. See the Downtown Meridian City Core Street Cross-section Master Plan for the preferred cross sections.

1. East/West Streetscape

- Dimensions – Minimum distance from face of building to back of curb shall be 18 feet. Minimum furnishing zone shall be 8 feet; minimum clear zone shall be 10 feet without use zone or 5 feet with use zone. Minimum use zone where exists shall be 5 feet.
- Street Trees – Trees shall be allowed from the following selection:

Botanical Name	Common Name	Size
Gleditsia triacanthids 'Imperial'	Imperial Honey Locust (limited use)	3" cal. B&B
Acer platinoids 'Fairview'	Fairview Maple	3" cal. B&B
Acer platinoids 'Parkway'	Parkway Maple	3" cal. B&B
Acer platinoids 'Deborah'	Deborah Maple	3" cal. B&B
Fraxinus pennsylvanica 'Patmore'	Patmore Ash	3" cal. B&B
Fraxinus pennsylvanica 'Urbanite'	Urbanite Ash	3" cal. B&B

2. North/South Streetscape (Except Main Street)

- Dimensions – Minimum distance from face of building to back of curb shall be 13 feet. Minimum furnishing zone shall be 8 feet; minimum clear zone shall be 5 feet. Where right-of-way allows, use zone shall be a minimum of 5 feet.
- Street Trees – Trees shall be allowed from the following selection:

Botanical Name	Common Name	Size
Gleditsia triacanthids 'Imperial'	Imperial Honey Locust (limited use)	3" cal. B&B
Acer platinoids 'Fairview'	Fairview Maple	3" cal. B&B
Acer platinoids 'Parkway'	Parkway Maple	3" cal. B&B
Acer platinoids 'Deborah'	Deborah Maple	3" cal. B&B
Fraxinus pennsylvanica 'Patmore'	Patmore Ash	3" cal. B&B
Fraxinus pennsylvanica 'Urbanite'	Urbanite Ash	3" cal. B&B

3. Main Street

- Dimensions – Minimum distance from face of building to back of curb shall be 13 feet. Minimum furnishing zone shall be 8



feet; minimum clear zone shall be 5 feet. Where right-of-way allows, use zone shall be a minimum of 5 feet.

- Street Trees – Trees shall be allowed from the following selection:

Botanical Name	Common Name	Size
Gleditsia triacanthids 'Imperial'	Imperial Honey Locust (limited use)	3" cal. B&B

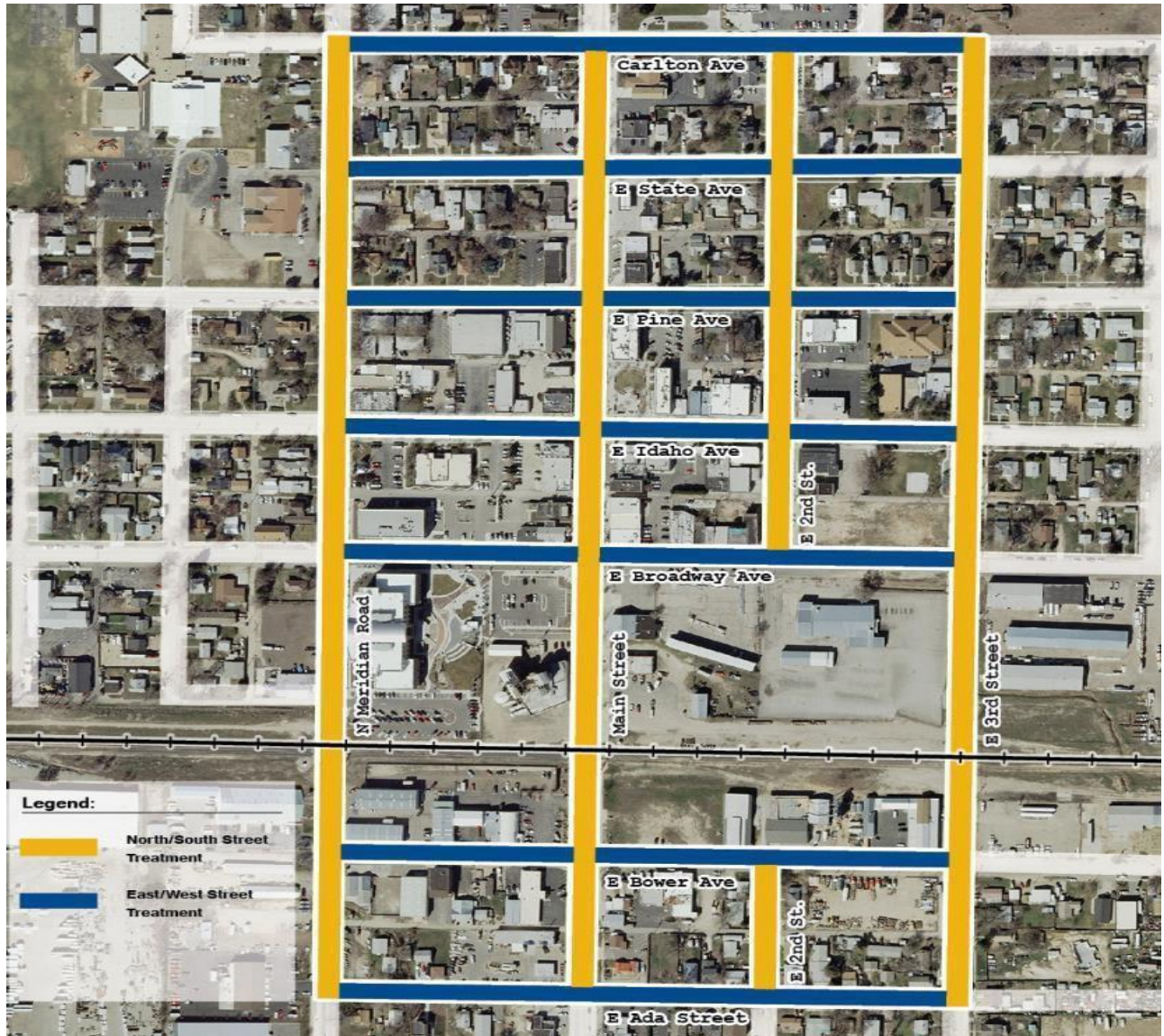
**D. Design of Layout**

1. An entire street block shall be analyzed to determine the spacing of street trees and street lights, even if only one part of the total block will be improved as part of the proposed improvements.
2. The control points of each block are the intersection corners, with the distance in between being the total block length. The total block length divided by the required spacing of the improvements will determine the total number of street trees and street lights required. Once the locations of the required improvements for the block have been estimated, then the location of the improvements needed for a particular part of the block can be determined.

**E. Streetscape Improvement Relocation** - The following standards apply when relocating existing streetscape improvements.

1. Existing improvements within the furnishing zone may be adjusted and moved provided that all damage to hardscape and other improvements occurring as a result of relocation is restored concurrently to a like new state.
2. Relocated improvements shall comply with all City Improvement Standards and Supplemental Specifications.
3. Any modification to existing street lights shall be consistent with City Standards and applicable spacing plans.
4. Replacement trees shall be installed per City Standards and applicable spacing plans.

### Drawing 10-A: City Core Map



**-END OF SECTION-**

## SECTION 11 LANDSCAPING

### 11-1    **SECTION SUMMARY:**

This section contains guidance and references for landscaping requirements.

### 11-2    **APPLICABLE STANDARDS:**

The requirements listed below shall apply to the design of landscaping. Conflicts between these requirements shall be resolved on a case-by-case basis.

- A.     Meridian City Code (MCC) - Title 11 “Unified Development Code” (UDC)
- B.     Downtown Meridian City Core Street Cross-section Master Plan
- C.     American Association of Nurserymen Standards

### 11-3    **GENERAL REQUIREMENTS:**

Landscaping materials and installation associated with roadways, parking lots, city and private parks, irrigation and storm water facilities, and other similar projects that involve landscaping as required by MCC 11-3B and the Downtown Meridian City Core Street Cross-section Master Plan shall be shown on design plans and constructed in accordance with the requirements provided herein.

**-END OF SECTION-**

## **SECTION 12**

### **WATERWAYS AND FLOODPLAINS**

#### **12-1 SECTION SUMMARY:**

This section contains guidance and requirements for the following: floodplain development and stream protection, including application and plan set provisions.

#### **12-2 APPLICABLE STANDARDS:**

The requirements listed below shall apply to the design of projects impacting waterways. Conflicts between these requirements shall be resolved on a case-by- case basis.

- A. All applicable standards as listed in Section 2-2
- B. Meridian City Code (MCC) - Title 10, Chapter 6 “Flood Damage Prevention”
- C. Meridian City Code (MCC) - Title 11 “Unified Development Code” (UDC)

#### **12-3 PROJECTS IMPACTING WATERWAYS**

- A. All projects impacting waterways shall be designed to meet the standards of UDC §11-1A-1 - Natural Waterways; §11-3A-6 – Ditches, Laterals, Canals, or Drainage Courses; and/or §11-3A-9 – Natural Features, as applicable.

#### **12-4 DEVELOPMENT WITHIN MERIDIAN FLOODPLAIN OVERLAY DISTRICT**

- A. All projects located within the Meridian Floodplain Overlay District shall be designed to meet the standards of MCC§10-6.
- B. Floodplain Development Permit Application:
  - 1. All applicable sections of floodplain development permit applications shall be completed.
  - 2. All floodplain development permit applications shall have the application signed by both the design professional of record and the owner or the owner’s legal agent for the project.
  - 3. All floodplain development permit applications shall contain the necessary information required in MCC §10-6, and shall be submitted to the Community Development Department with the applicable fee payment.
  - 4. All floodplain development permit applications shall include electronic files of the applicable hydrologic and hydraulic studies necessary to satisfy MCC §10-6. All studies shall be stamped and signed by the Design Professional.
  - 5. All floodplain development permit applications shall include plan sets and electronic files illustrating the proposed project, and containing the minimum information specified in MCC 10-6-4A2. In addition, plans shall illustrate the following, as applicable:
    - Floodplain Overlay District boundary
    - Floodway Overlay District boundary
    - FEMA regulated 100-year Special Flood Hazard Area
    - FEMA regulated floodway
  - 6. Plans submitted shall be stamped and signed by the Design Professional.

**-END OF SECTION-**