Village of Bee Cave, Texas

Official
Technical Construction
Standards and Specifications

These technical construction standards and specifications shall be effective on the date of their adoption.

PASSED AND ADOPTED this 5th day of September, 2000.

Caroline L. Murphy
Mayor, Village of Bee Cave

ATTEST:

Sherry Marburger
Village Secretary
Village of Bee Cave

[SEAL]

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1.1.1. Standards

The construction of improvements listed in Section 1.1.0 shall comply with the following standards, which are incorporated herein by references and which are modified herein:

A. City of Austin, Texas Standard Specifications, latest edition.

B. City of Austin, Texas Standards, latest edition.

1.2.0 Exceptions to the Referenced Standards

A. The following exceptions shall apply to the referenced standards.

B. All provisions and standards of the Village of Bee Cave Code of Ordinances shall be applicable and shall govern if there is a conflict with the Standards referenced in Section 1.1.1.

1.2.1 City of Austin, Texas Standard Specifications

A. Series 200 - "Subgrade and Base Construction"
   1. Item 201S "Subgrade Preparation"
      a) Section 201S.2 "Construction Methods". All testing shall be performed by an independent testing laboratory acceptable to the Village, and provided and paid for by the owner.

B. Series 400 - "Concrete Structures and Miscellaneous Concrete"
   1. Item 410. "Concrete Structures"
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C. Series 500 - Underground Piped Utilities
   1. Item 502 "Tunneling"
      a) Section 502.4 "Construction Methods", Subsection (3). Blasting shall not be allowed within the jurisdictional boundaries of the Village without the expressed, written consent of the Board of Aldermen.
   2. Item 510 "Pipe"
      a) Section 510.3 (24) "Water System Connection"
         1) Owner's contractor shall be responsible for timely scheduling of connections to the water or wastewater system.

2) The Village will not make the pressure tap.
3) During the pressure tap, an inspector from the provider of the water or wastewater utility system shall be present during the entire tap operation. The owner's contractor shall be responsible for the timely coordination and modifications.

b) Section 510.3 (26) "Quality Testing for Installed Pipe"
1) Wastewater pipe installed within the jurisdictional boundaries of the Village of Bee Cave shall be tested by the owner for exfiltration or infiltration, as described in this section.
2) The provisions required for testing within the Edwards Aquifer Recharge Zone or Edwards Aquifer Transition Zone shall also apply to all improvements within the jurisdictional boundaries of the Village of Bee Cave.

c) Section 510.3 (27) "Pressure Pipe Hydrostatic Testing". Owner's contractor shall perform all pressure testing and leakage testing.

d) Section 510.3 (28) "Service Charges for Testing". This section does not apply.

e) Section 510.3 (29) "Disinfection of Potable Water Lines". Owner's contractor shall perform all disinfection work and testing, subject to the approval of the owner/operator of the water system.

D. Series 600 - Environmental Enhancement
1. Item 602S "Sodding for Erosion Control".
a) Section 602S.3 "Materials". Type (s) of grasses shall also comply with the provisions of the Village of Bee Cave Code of Ordinances for landscaping.
b) Section 604S.4 "Construction Methods". Native Grass seeding shall be required.
2. Item 606S "Fertilizer". Fertilizer shall also comply with the provisions of the Village of Bee Cave Code of Ordinances for landscaping.
3. Item 608 "Planting". Planting shall also comply with the provisions of the Village of Bee Cave Code of Ordinances for landscaping.

E. Series 700 - "Incidental Construction"
1. Item 725 "Survey Markers". The owner's contractor shall provide and install all survey markers at the owner's expense.

F. Series 800 - "Urban Transportation"
1. Item 802 "Capital Improvement Project Signs". All CIP projects within the jurisdictional boundaries of the Village of Bee Cave shall provide signs in accordance with this item.
2. Item 825 "Street Name Signs". Street name signs shall also comply with

the provisions of the Village of Bee Cave Code of Ordinances for signs.

G. Series 1800 - "Private Development"

1. Section 1802S "Definition of Terms".

a) "The City" or "The City of Austin" shall be construed to mean the Village of Bee Cave.

b) "The Director" shall be construed to mean the Village Administrator or his/her duly authorized representative.

c) "The Construction Engineer" shall be construed to mean the Village Engineer or his/her duly authorized representative.

d) "The Development Permit" shall be construed to mean the Site Development Permit or the Building Permit.

e) "The Managing Department" shall be construed to mean the Village Administrator or his/her duly authorized representative.

f) "The Inspector" shall be construed to mean the Village Inspector or his/her duly authorized representative.

2. Section 1803S.9 "Construction Drawings". The second paragraph does not apply.

3. Section 1803S.14 "Objections". This section does not apply.

4. Section 1804S.4 "Testing of Materials". All testing shall be performed by an independent certified testing laboratory, approved by the Village, and provided and paid for by the owner.

5. Section 1804S.7 "Street Signs". Owner/developer shall provide and install all signs.

6. Section 1804S.10 "Contractor's License". This section does not apply.

7. Section 1805S.5 "Location and Protection of Utilities". The second paragraph does not apply.

8. Section 1805S.6 "Public Right of Way Cut Permits". The second paragraph does not apply.

1.3.0 Additions to the Referenced Standards

1.3.1 General

The following provisions shall be added to the referenced standards.

1.3.2 Indemnification

Neither the Village nor its agents, employees or consultants shall be responsible for the means, methods, techniques, sequences or procedures of construction selected by the owner or the owner's contractor, or any safety precautions and programs relating in any way to the condition of the premises, the work of the owner's contractor or any subcontractor.

Neither the Village nor its agents, employees or consultants shall be responsible for the acts of omissions of any person (except its own employees or agents or consultants) at the Project site or otherwise performing any of the work of the Project.

2.00 TRANSPORTATION FACILITIES

2.1.0 General

The design and construction of transportation facilities and systems within the incorporated limits and the ETJ of the Village shall comply with the following standards, which are incorporated herein by reference and which are modified herein:

A. City of Austin, Code of Ordinances, Volume II, Title 25 Land Development, Chapter 25-6 Transportation, latest edition.

B. City of Austin, Texas Transportation Criteria Manual, latest edition.

C. City of Austin Standard Specifications, latest edition.

2.1.1 Definition of Transportation Systems

Transportation systems shall include streets, traffic impact analysis, pavement design, sidewalks and curb ramps, driveways, clear zones and guard fences, bikeways, traffic control and parking lot layouts.

2.2.0 Exceptions to the Referenced Standards

2.2.1. General

A. The following exceptions shall apply to the referenced standards.

B. All references to the City of Austin shall be construed to mean the Village of Bee Cave.

C. All provisions and standards of the Village of Bee Cave Code of Ordinances shall be applicable and shall govern if there is a conflict with the standards referenced in Section 2.1.0.

2.2.2. City of Austin, Texas Code of Ordinances, Volume II, Title 25, Chapter 25-6.

A. Section 25-6-21 "Applicability". This section does not apply.

B. Section 25-6-143 "Appeal of Director Action". This section does not apply.

C. Section 25-6-202 "Streets in a Critical Water Quality Zone or Water Quality Buffer Zone". All street design shall comply with the alternative geometric design criteria for streets without curbs and gutters prescribed in the Transportation Criteria Manual.

D. Section 25-6-204 "Lots on Streets with no Curb and Gutter". This section does not apply.

E. Article 5, Division 1: "Construction License", Section 25-6-231 through Section 25-6-235. These sections do not apply.

F. Section 25-6-268 "Roadway Maintenance". The Village will not repair or maintain the roadways and facilities in the right-of-way unless the roadways and their facilities are dedicated to the Village.

G. Section 25-6-476 "Bicycle Parking Facilities". This section does not apply.

H. Article 7, "Off-Street Parking and Loading".
1. Division 1: "General Regulations", Section 25-6-471 through Section 25-6-479. These sections do not apply.
2. Division 2: "Off-Site Parking", Section 25-6-501 through Section 25-6-503. These sections do not apply.
3. Division 3: "Off- Street Loading", Section 25-6-531-through Section 25-6-532. These sections do not apply.

I. Division 5: "Special Provisions for Property in the Central Business District (CBD), a Downtown Mixed Use (DMU) Zoning District, and the Central Urban Redevelopment (CURE) Combining District Area", Section 25-6-591 through Section 25-6-593. These sections do not apply.

J. Article 8: "Road Utility Districts", Section 25-6-621 through Section 25-6-627 and Section 25-6-651 through Section 25-6-655. These sections do not apply.

2.2.3 Transportation Criteria Manual

A. Section 1 - "Street Design Criteria"

1. Section 1.2.2 "Functional Characteristics". The street classifications given in this section shall have the corresponding street classifications given in the adopted Thoroughfare Plan of the Comprehensive Plan 2000 of the Village of Bee Cave:

	City of Austin	Village of Bee Cave Thoroughfare Plan
a)	Alley	Alley
b)	Local Street	Local Street
c)	Collector Street	Collector Street
d)	Arterial Street	Arterial or Major

		Thoroughfare
e)	Freeway	Freeway and Expressway
f)	Parkway	(None)

2. Section 1.4.1 "Applicability of Alternative Geometric Design Criteria". All streets shall comply with the alternate geometric design criteria, without curb and gutter.

B. Section 2 - "Traffic Impact Analysis"

1. Section 2.3.6 "Certification Statement". Certification Statement shall refer to Village of Bee Cave requirements.

2. Section 2.5.0 "Neighborhood Traffic Analysis". Owner/Developers shall perform all neighborhood TIA.

C. Section 3 - "Computerized Pavement Design"

A. Section 3.1.0 "General". The computerized pavement design will not be required unless specifically requested by the Village Engineer. The SIM procedure shall be used for all street pavement design.

D. Section 4 - "Sidewalks and Ramps"

1. Section 4.2.1 "General Requirements". Sidewalks shall not be required except to specifically comply with the Americans With Disabilities Act.

2. Section 4.3.0 "Curb Ramps". Curb ramps shall be constructed if curbs are constructed, even if a sidewalk is omitted.

3. Table 4-3 "Sidewalk Variance Checklist". The Village will consider this checklist as part of its determination of allowing sidewalks to be constructed.

E. Section 5- "Driveways"

1. Section 5.3.1. "General". Curbs shall not be constructed unless specifically authorized by the Village as a variance.

F. Section 8 - "Traffic Control"

1. Section 8.5.1 "Procedures"
   a) Subsection A. "Street Cuts". A Street Cut Permit shall be obtained from the Village in addition to the Site Development Permit or the

Building Permit.

b) Subsection B. "Temporary Use of Right-of-Ways". A Permit must be acquired from the Village for temporary use of the Village's right of way, in addition to the Site Development Permit or the Building Permit. This Permit will not be required if a Street Cut Permit is required.

2. Section 8.5.2 "Requirements"

a) Subsection A. "Downtown Urban Areas". The Downtown Urban Area of the Village is the geographic area designated as the Town Center in the Village's adopted Comprehensive Plan 2000.

b) Subsection C.1. "Traffic Signals". This subsection does not apply.

c) Subsection C.2. "Traffic Control and Street Name Signs". Owner/Developer shall be responsible for all repairs and replacements.

d) Subsection C.3 "Parking Meters". This subsection does not apply.

G. Section 9 - "Parking Lot Layouts"

1. Section 9.6.7 "Monitoring". Owner/Developer shall perform the follow-up evaluation if requested in writing by the Village Administrator.

2.2.4 City of Austin Standard Specifications

A. The exceptions to the City of Austin's Standard Specifications with respect to transportation systems are given in Section 1.00 of this TCSS Manual.

3.00 WATER AND WASTEWATER FACILITIES

3.1.1 General

The design and construction of water and wastewater facilities within the incorporated limits and the ETJ of the Village of Bee Cave shall comply with the following standards, which are incorporated herein by reference and which are modified herein:

A. City of Austin, Texas Code of Ordinance, Volume II, Title 25 Land Development, Chapter 25-9 Water and Wastewater, latest edition.

B. Utilities Criteria Manual of the City of Austin, Section 2 Water and Wastewater Design Criteria and Section 5, Cuts in Public Right-of-Way, latest edition.

C. City of Austin Standard Specifications, latest edition.

D. Utilities Qualified Products List, City of Austin, latest edition.

E. Service Connection Guide, City of Austin, latest edition.

3.2.0 Exceptions to the Referenced Standards

3.2.1 General

A. The following exceptions shall apply to the referenced standards.

B. All references to the City of Austin shall be construed to mean the Village of Bee Cave.

C. All Provisions and Standards of the Village of Bee Cave Code of Ordinances shall be applicable and shall govern if there is a conflict with the standards referenced in Section 3.1.1.

3.2.2. City of Austin, Texas Code of Ordinances

A. Section 25-9-3 "Service Outside Service Areas Prohibited". The Village will not provide water or wastewater facilities or services.

B. Section 25-9-4 "Connection and Organized Wastewater System Required". This section does not apply.

C. Section 25-9-5 "Regulation of a Wastewater Treatment Plant by the Health Authority". This section does not apply.

D. Section 25-9-33 "Service Extension Application"

1. (A) (2), (A) (4). Capital Improvements projects will be initiated by provider of the water and wastewater utility systems.
2. (B) (1). The Village will not provide the utility system.
3. (F) Application for a service extension must be for a tract of land within the jurisdictional boundaries of the Village.

E. Section 25-9-34 "Administrative Approval of a Service Extension"

1. (B) The Village will not participate in cost participation or reimbursement.

F. Sections 25-9-38 "Expiration of Service Extension Approval"

1. (C) This Subsection does not apply.

G. Section 25-9-41 "100-foot Rule". This section does not apply.

H. Section 25-9-61 through Section 25-9-68. These sections do not apply.

I. Section 25-9-91 "Tap Permit Required". A tap permit shall be required to connect to the provider's water or wastewater utility system within the jurisdictional boundary of the Village.

J. Section 25-9-99 "Temporary Tap Permits for a Community Garden". This section does not apply.

K. Article 2 "Water Districts", Section 25-9-131 through Section 25-9-287. These sections do not apply.

L. Article 3 "Water and Wastewater Recovery Fees", Section 25-9-311 through Section 25-9-353. These sections do not apply.

3.2.3. Utilities Criteria Manual of the City of Austin, Section 2, Water And Wastewater Design Criteria

A. Section 2.2.1 "General Information"
1. The "Water and Wastewater Service Area" shall be the jurisdictional boundary of the Village.
2. Fiscal security shall be as required by the Utilities Criterial Manual, or the Village of Bee Cave's Code of Ordinances, or by the provider of the water or wastewater utility system, whichever is greater.
3. No lines will be maintained, owned or operated by the Village.
4. Fire flow requirements will be determined by the Hudson Bend Fire Department and the owner/operator of the water system utility.

5. The Village will not extend water and/or wastewater systems 100 feet.

B. Section 2.2.2 "Service Extension Application Requirements". The Owner/developer shall provide proof to the Village of service extension approval by the utility provider.

C. Section 2.2.5 "Notification of Recommendations and Approvals" shall not apply.

D. Section 2.2.6 "System Capacity Determination Procedures for Reviewing Service Extensions by the Water and Wastewater Utility".
   1. The owner/developer and the utility provider will make the system capacity determinations.
   2. The owner/devloper shall provide proof of the system capacity determination to the Village.

E. Section 2.3.1 "Plumbing Inspections Outside the City's Zoning Jurisdiction". The Village will perform inspections of the private plumbing installations within the zoning jurisdiction of the Village.

F. Section 2.3.3"Installation of Water Meters". Meters will be provided by the utility provider.

G. Section 2.5.1 "General"
   1. Subsection A. Construction plans shall be submitted to the Village.
   2. Subsection B. Prior approval of the construction plans by the utility provider shall be required.
   3. Subsection E. Fire protection details shall be approved by the Hudson Bend Fire Department and by the provider of the water system utility.

H. Section 2.7.1. "Engineering Report, Plans, and Specifications Review and Approval.

   1. Subsection A. Three (3) copies of the Engineering Report shall be submitted to the Village. The Village will coordinate review with the utility provider.
   2. Subsection B. Three (3) copies of "Issued for Review " construction plans and specifications shall be submitted to the Village. The Village will coordinate review with the utility provider. Upon receipt of the Village's review comments, revise the "Issued for Review" construction plans and specifications and re-submit three (3) copies of the documents as "Issued for Construction" construction plans and specifications for final approval. The Village will coordinate the final approval with the utility provider.

I. Section 2.7.2 "Submittal and Shop Drawing Review". Three (3) copies of each construction submittal shall be submitted to the Village. The Village will

coordinate submittal distributions and reviews with the utility provider.

J. Section 2.7.3 "City Operations and Maintenance Acceptance".
   1. The Village will not accept ownership, operations or maintenance of water or wastewater facilities. If a private or public entity, separate from the owner, accepts ownership, operation, or maintenance of the water or wastewater system, then proof of conformance with the provisions of Section 2.7.3 shall be provided to the Village prior to the Village's final approval of the constructed improvements.

K. Section 2.8.3 "Lift Stations". The Village shall be notified in writing at least 90 calender days prior to abandonment of a lift station.

L. Section 2.9.1 "Design Requirements for Water and Wastewater Systems, Introduction". The Village will not operate or maintain water or wastewater facilities.

M. Section 2.9.2 "Water Systems"
   1. Subsection A.3 "Emergency Demand (Fire Flow) Requirements". Fire flow requirements shall be determined in accordance with the Hudson Bend Fire Department's requirements and the requirements of the provider of the water system utility.

   2. Subsection B.2 Assignments of mains within public ROW's shall be subject to the Village's approval.

3.2.4 Utilities Criteria Manual of the City of Austin, Section 5 "Cuts in Public Right-of-Way".

A. Section 5.3.1. "General". The Permit will be issued by the Village Administrator.

B. Section 5.3.2 "One-Call System". This section does not apply.

H. Section 5.3.3. "Procedures for Request of Permits".
   1. Provide written notification to the Village Administrator.
   2. Permits with each utility provider shall be obtained by the owner/developer.

D. Section 5.3.4 "Information to be Furnished for Permit". Information shall be provided, in writing, to the Village Administrator.

E. Section 5.3.5 "Denial or Suspension of Permit". The annual Contractor's license is not required.

D. Section 5.3.7 "Liability for Street Cuts".
   1. The Surety Bond shall be provided to the Village.

2. The Village will not make permanent surface repairs.

G. Section 5.7.0 "Moonlight Towers - Special Permit". This section does not apply.

H. Section 5.9.0 "Billing Procedures and Fees". Fees will be charged by the Village in accordance with its fee schedule.

3.2.5 City of Austin Standard Specifications

The exception to the City of Austin's Standard Specifications with respect to utility design and construction are given in Section 1.00 of this TCSS Manual.

4.00 DRAINAGE FACILITIES

4.1.0 General

The design and construction of drainage facilities and systems within the incorporated limits and the ETJ of the Village of Bee Cave shall comply with the following standards, which are incorporated herein by reference and which are modified herein:

A. City of Austin, Texas Code of Ordinances, Volume II, Title 25 "Land Development", Chapter 25-7 "Drainage", latest edition;

B. City of Austin, Texas Drainage Criteria Manual, latest edition;

C. City of Austin, Texas Standard Specifications, latest edition;

4.1.1 Definition of Drainage Facilities and Systems

Drainage systems and facilities shall include street drainage, site drainage, bridges and culverts and stormwater detention.

4.2.0 Exceptions to the Referenced Standards

4.2.1 General

A. The following exceptions shall apply to the referenced standards.
B. All references to the City of Austin shall by constructed to mean the Village of Bee Cave.
C. All provisions and standards of the Village of Bee Cave Code of Ordinances shall be applicable and shall govern if there is a conflict with the standards referenced in Section 4.1.0.

4.2.2 City of Austin, Texas Code of Ordinances, Volume II, Title 25, Chapter 25-7.

A. Section 25-7-32 "Floodplain Maps; Floodplain and Floodway Delineation".

1. Subsection (C): Owner/developers shall show the boundaries of the "Area of Shallow Flooding" as defined by the Village of Bee Cave Code of Ordinances.

B. Section 25-7-63 "Review by Parks and Recreation Board of Certain Site Plans". This section does not apply.

C. Section 25-7-64 "Approval by Watershed Protection Department Director of Certain Permits and Certificates". This section does not apply.

D. Section 25-7-92 "Encroachment on Floodplain Prohibited"

1. Subsection (A). This subsection does not apply.

E. Section 25-7-93 "General Exceptions".

1. Subsections (A)(2)(a), (A)(3), (A)(4), (A)(5). These subsections do not apply.

F. Section 25-7-94 "Exceptions in Central Business Area". This section shall apply to all non-residential development.

G. Section 25-7-95 "Exceptions for Parking Areas".

1. Subsection (B). This subsection does not apply.

H. Section 25-7-122 "Enclosed Storm Sewer System". Enclosed storm sewer systems will not be required.

I. Section 25-7-123 "Enclosed Storm Sewers, Bridges and Culverts". Enclosed storm sewer systems will not be required.

J. Section 25-7-151 "Stormwater Conveyance and Drainage Facilities".

1. Subsection (F). The Village will not assist the owner/developer in the acquisition of an interest in property.

4.2.3 City of Austin, Texas Drainage Criteria Manual

A. Section 1.2.4 "Drainage Systems"

1. Subsection E.1. Fencing shall comply with the Village of Bee Cave Code of Ordinances.

2. Subsection E.2. Landscaping shall comply with the Village of Bee Cave Code of Ordinances.

3. Subsection E.10. Trees of a 6" caliper trunk, measured 4 ½ feet above the ground.

4. Subsection E.15. This subsection does not apply.

B. Section 1.4.0 "Code Designation of Austin Area Watersheds". This section does not apply.

C. Section 6.4.2 "Concrete Lined Channels". Concrete lined channels shall not be allowed without the authorization of the Village as a variance.

D. Section 8.2.0 "Regional Stormwater Management Program". This section does not apply.

E. Section8.3.4 "Safety Criteria for SWM Ponds" .

1. In addition to the criteria given in this section, SWM ponds shall also comply with all applicable dam safety standards of the Texas Natural Resource Conservation Commission.

2. Subsection H. Discharges shall be conveyed in open channels, changing from concentrated to sheet flow as quickly as possible.

F. Appendix D. "Regional Stormwater Management Participation Fees". This appendix does not apply.

4.2.4 City of Austin, Texas Standard Specifications

A. The exceptions to the City of Austin's standard specifications with respect to drainage facilities and systems are given in Section 1.00 of this TCSS Manual.

5.00 ENVIRONMENT

5.1.0 General

The environmental assessments and the design and construction of environmental facilities and systems within the incorporated limits and the ETJ of the Village of Bee Cave shall comply with the following standard, which are incorporated herein by reference and which are modified herein:

A. City of Austin, Texas Code of Ordinance, Volume II, Title 25 "Land Developments" Chapter 25-8, "Environment", Subchapter A "Water Quality", latest edition;

B. City of Austin, Texas Environmental Criteria Manual, Section 1 "Water Quality Management", latest edition;

C. Lower Colorado River Authority. Non-point Source Pollution Control Technical Manual, Third Edition;

D. City of Austin, Texas Standard Specifications, latest edition;

5.1.1 Definition of Environmental Facilities and Systems

Environmental facilities and systems shall include environmental assessments, water quality controls, temporary erosion and sedimentation controls, permanent erosion and sedimentation controls, and on-site irrigation with wastewater effluent.

5.2.0 Exceptions to the Referenced Standards

5.2.1 General

A. The following exceptions shall apply to the referenced standards.

B. All references to the City of Austin shall be construed to mean the Village of Bee Cave.

C. All provisions and standards of the Village of Bee Cave Code of Ordinances shall be applicable and shall govern if there is a conflict with the standards referenced in Section 5.1.0.

5.2.2 City of Austin Code of Ordinances, Volume II, Title 25, Chapter 25-8, Subchapter A.

A. Article 1: "General Provision"

1. Division 1, Section 25-8-1 through Section 25-8-2. These sections do not apply.

2. Division 2, Section 25-8-21 through Section 25-8-26. These sections do not apply.

3. Division 3, Section 25-8-41 through Section 25-8-43. These sections do not apply.

4. Division 4, Section 25-8-61 through Section 25-8-65. These sections do not apply.

B. Article 2: "Waterways Classified; Zones Established"

1. Section 25-8-91 "Waterways Classifications". This section does not apply.

2. Section 25-8-92 "Critical Water Quality Zones Established". This section does not apply.

3. Section 25-8-93 "Water Quality Transition Zones Established". This section does not apply.

4. Section 25-8-94 "Upland Zones Established". This section does not apply.

C. Article 3: "Environmental Assessment; Pollution"

1. Section 25-8-121 "Environmental Assessment Requirement"

a) Subsection (A). An environmental assessment shall be filed with the Village for proposed development located:
   1) adjacent to Little Barton Creek or Barton Creek;
   2) in a water quality buffer zone;
   3) in a 100-year floodplain; or
   4) on a tract with a gradient of more of 25 percent

2. Section 25-8-123 "Vegetation Report"

a) Subsection (2)(a). Tree Survey shall be conducted in accordance with the Village of Bee Cave Code of Ordinances.

3. Section 25-8-124 "Wastewater Report"

a) Subsection (1). Justification shall be made for a sewer line in a

water quality buffer zone.

D. Article 5: "Erosion and Sedimentation Control; Overland Flow"

1. Section 25-8-184 "Additional Erosion and Sedimentation Control Requirements in the Barton Springs Zone". All development shall comply with the standards and requirements of this section.

E. Article 6: "Water Quality Controls"

1. Section 25-8-213 "Water Quality Control Standards"

   a) Subsection (C)(3):Water Quality Control shall not be located in the water quality buffer zone.
   b) Subsection (D): All development shall comply with the requirements of this subsection.

2. Section 25-8-214 "Optional Payment Instead of Structural Controls in Urban Watersheds". This section does not apply.

3. Section 25-8-215 "Cost Recovery Program". This section does not apply.

4. Section 25-8-231 "Water Quality Control Maintenance and Inspection".

   a) Subsection (A). The Village will inspect each water quality control at least once a year.

   b) Subsection (B). Owner/developer shall maintain the water quality control.

5. Section 25-8-233 "Barton Springs Zone Operating Permit". All development shall comply with this section.

6. Section 25-8-234 "Fiscal Security in the Barton Springs Zone". All development shall comply with this section.

F. Article 7: "Requirements in All Watersheds"

1. Division 1, Section 25-8-261 through Section 25-8-262. These sections do not apply.

2. Division 2, Section 25-8-281 through Section 25-8-282. These sections do not apply.

3. Division 3, Section 25-8-301 through Section 25-8-304. These sections do not apply.

4. Division 4, Section 25-8-321 through Section 25-8-328. These sections do not apply.

5. Division 5, Section 25-8-341 through Section 25-8-343. These sections do not apply.

6. Division 6, Section 25-8-361 through Section 26-8-363. These sections do not apply.

G. Article 8, Section 25-8-391 through Section 25-8-395. These sections do not apply.

H. Article 9, Section 25-8-421 through Section 25-8-425. These sections do not apply.

I. Article 10, Section 25-8-451 through Section 25-8-455. These sections do not apply.

J. Article 11, Section 25-8-481 through Section 25-8-484. These sections do not apply.

K. Article 12, Section 25-8-511 through Section 25-8-523. These sections do not apply.

5.2.3 City of Austin, Texas Environmental Criteria Manual, Section 1.

A. Section 1.2.1 "Fiscal Security". Fiscal security shall be determined by the owner's consulting engineer in accordance with Subsection (c).

B. Section 1.2.2.1 "Submitted Requirements for Projects in the Barton Springs Zone".

1. All development shall comply with the requirements of this section and its subsections regardless of the development's location.

2. Subsection A. "Water Quality Control Plan for Site Plans and Subdivision Construction Plan Submittals".

a) Subsection A.2. Pollutant concentration requirements shall be as described in the Village of Bee Cave Code of Ordinances and in this section of this TCSS Manual.

b) Subsection A.8. All required items shall be provided to demonstrate compliance with the Village of Bee Cave Code of Ordinances.

3. Subsection E "Fiscal Security".

a) Item 1. "Fiscal Posting for Construction and Maintenance"

1) Fiscal security for construction and maintenance shall be required for all water quality controls in the amounts per this section.

2) "Commercial" shall be construed to mean "non-residential".

b) Item 2. "Fiscal Posting for Performance".

1) Fiscal security for performance shall be required for all water quality controls in the amounts per this section.

2) "Commercial" shall be construed to mean "non-residential".

C. Section 1.2.2.2. General Rules

1. Subsection A. "General Guidelines for Implementation of Ordinance No. 911017B". This Subsection does not apply.

2. Subsection B. "Watershed Variances - Findings of Fact". This section does not apply.

D. Section 1.2.2.3. "Administrative Variances". This section does not apply.

E. Section 1.2.2.4. "Responsibility for Maintenance of Controls". The owner/developer shall be responsible for the maintenance of all water quality controls.

F. Section 1.2.2.6. "Operation Permits for Commercial and Multi-family Water Quality Controls". This section does not apply.

G. Section 1.2.2.7. "Requirements for Acceptance of Water Quality Controls". This section does not apply.

H. Section 1.2.3.1. "Submittal Requirements for Projects in the Barton Springs Zone". This section does not apply.

I. Section 1.2.3.2. "General Rules"

1. Subsection G. "Operating Permits"

a) Annual operating permits shall be required for all water quality controls.

b) "Commercial" shall be construed to mean "non-residential".

c) The Village will not operate or maintain water quality controls.

J. Section 1.2.3.3. "Site Management". This section does not apply.

K. Section 1.4.1.1. "City of Austin Erosion and Sediment Control Policy".

1. Subsection D. "Ordinance Authority". This section does not apply.

L. Section 1.4.4 "Vegetative Practice". Vegetative types for erosion and sedimentation control shall comply with the Village of Bee Cave Code of Ordinances.

M. Section 1.5.0 "Revegetation Criteria". Revegetation types shall comply with the Village of Bee Cave Code of Ordinances.

N. Section 1.6.0 "Design Guidelines for Water Quality Controls".

1. Section 1.6.1. "Introduction". "Commercial" shall be construed to mean "non-residential"

2. Section 1.6.3. "Maintenance and Construction Responsibilities".

a) Subsection A. "Maintenance Responsibilities". Owner/developer shall maintain all water quality controls.

b) Subsection B. "Maintenance Design Requirements".

1) Fencing and barriers shall comply with the Village of Bee Cave's Code of Ordinances.

2) Trees of a 6" caliper trunk, measured 4 ½ feet above the ground, and greater shall be preserved.

3. Section 1.6.7 "Rules to Implement On-Site Control of the Two-Year Storm as Required by Ordinances 931209-H and 931216-R". All development shall be subject to the two-year storm runoff control requirements of this section.

4. Section 1.6.8. "Water Quality Control Requirements for the Barton Springs Zone Composite Ordinance". This section does not apply.

5. Section 1.6.9.2 "Pollution Prevention Measures".

   a) Subsection B through Subsection F. These subsections do not apply.

6. Section1.6.9.3 "Control Measure Design".

   a) Subsection A. "Baseline Pollutant Load Calculations". Baseline pollutant loads shall be calculated for all areas which are to be developed for the pollutants listed in the Village of Bee Cave's Code of Ordinances.

7. Table 1-9 "Runoff Coefficient Table". The runoff values for the "Non-Recharge Zone Runoff" shall be used.

8. Table 1-10 "Baseline Pollutant Concentrations and Unit Area Loads for Undeveloped Sites". Oil and Grease pollutant concentrations shall be added to Table 1-10 and shall be 0 mg/l.

9. Table 1-11 "Standard Pollutant Concentrations for Developed Sites".

   a) "Commercial" shall be construed to mean 'non-residential".

   b) Oil and Grease pollutant concentration shall be added to Table 1-11 and shall be 5 mg/l for all conditions. The load calculation for oil and grease under developed conditions shall represent only the paved surfaces of the development and is not required to include roof tops.

O. Section 1.7.0 "Floodplain Modification Criteria".

1. Section 1.7.1 "Introduction". These guidelines apply only to development proposed in a floodplain or in a water quality buffer zone.

2. Section 1.7.3 "Application of Guidelines". These guidelines apply to the

development of all floodplains and water quality buffer zones located within the jurisdictional boundaries of the Village.

3. Section 1.7.4 "Appeals". This section does not apply.

4. Section 1.7.7 "Alterations in Floodplain". "Critical water quality zone" shall be construed to mean "water quality buffer zone".

P. Section 1.8.0. "Impervious Cover Calculation Criteria".

1. Section 1.8.1 "Calculations"

a) Subsection A. Impervious cover calculations shall include all swimming pool surface areas and sidewalks.

b) Subsection D. Maximum pavement width for imperious cover calculations shall be 30 feet.

c) Subsection E. Maximum pavement width for impervious cover calculation shall be 30 feet.

2. Section 1.8.2. "Construction on Slopes"

a) Subsection A. This subsection does not apply.

b) Subsection B.

1) Building and parking areas may be constructed on slopes in excess of 15 percent, subject to the requirements of Subsection B.2 through B.6.

2) Subsection B.1. This subsection does not apply.

3) Subsection B.2. This subsection applies to development on slopes in excess of 15 percent.

4) Subsection B.3. This subsection applies to development on slopes in excess of 15 percent.

A. Section 1.9.0 "Need for Water Quality Controls". This section does not apply.

B. Section 1.10.0 "Point Recharge Identification Criteria". This section does not apply.

C. Section 1.11.0 "Guidelines for Evaluation of Land Proposed for Application of

Treated Wastewater Effluent". "Critical water quality zone" shall be construed to mean "water quality buffer zone".

5.2.4 Lower Colorado River Authority, Non-point Source Pollution Control Technical Manual.

A. Section 1. "Non-point Source Pollution Control Permit Requirements and Procedures". This section does not apply.

B. Appendix A. "Permitting Procedures and Requirements". This section does not apply, except the following shall apply:

1. Subsection 2. "Preliminary Plat Review Submittal Checklist";

2. Subsection 3. "Final Plan Review Submittal Checklist".

→ C. Appendix B. "Meeting NPS Ordinance Performance Standards, Water Quality BMP Design and Assessment".

1. Section 1. "Application of Performance Standards for Water Quality Control". This section does not apply.

2. Section 2. "Alternative Performance Standards for Low Density Single Family Subdivisions". This section does not apply.

3. Section 3. "Estimating Annual Pollutant Load". This section does not apply. Use the methodology in the City of Austin's Environmental Criteria Manual.

4. Section 4. "Selection of the Optional BMP Strategy"

a. Subsection C. This subsection does not apply. Use the methodology in the City of Austin's Environmental Criteria Manual.

5. Table B-4 "Summary of BMP Pollutant Removal Specifications". This table shall apply only to the BMP's designed under the criteria and standards of the LCRA Non-point Source Pollution Control Technical Manual.

6. Figure B-1 "Runoff Coefficient vs. Impervious Cover Relationship". This table does not apply. Use the methodology in the City of Austin's Environmental Criteria Manual.

7. Figure B-2 "Runoff/Rainfall Ratio for 1.50 inch Storm vs. Percent

Impervious Cover". This table does not apply. Use the methodology in the City of Austin's Environmental Criteria Manual.

8. Table B-7 "Stormwater Pollutant Concentrations for Different Land Uses (Mg/l)". This table does not apply. Use the methodology in the City of Austin's Environmental Criteria Manual.

5.2.5 City of Austin, Texas Standard Specifications. The exceptions of the City of Austin's Standard Specifications with respect to environmental controls are given in Section 1.00 of this TCSS Manual.

5.3 Calculation of the Impervious Cover Allowance for Isolation of Roof Runoff and Irrigation

5.3.1 General

This section provides guidelines and example calculations for determining the impervious cover allowance if roof runoff is isolated, treated as a water quality control, and used for on-site irrigation.

5.3.2 Guidelines and Example Calculations

A. Example:

1. Non-residential development
2. 3-acres lot (130,680 square feet)
3. Roof area of 40,000 square feet
4. Requesting total impervious cover of 58,000 square feet (44.4% impervious cover)
5. Requesting the use of isolation and treatment and irrigation of roof runoff for the 40,000 square feet of roof area.

B. Calculate the background TSS pollutant load for the roof area.

Example:

1. Roof area = 40,000 ft^2 = 0.9183 acres

2. TSS background pollutant load = 55 x 0.049 x 32.5 x 0.2267 x 0.9183 = 18.23 lbs/yr

C. Calculate the total TSS pollutant load for the roof area.

Example:

1. TSS total pollutant load = 110 x 0.248 x 32.5 x 0.2267 x 0.9183 = 184.57 lbs/yr

D. Calculate the 95% TSS pollutant removal requirement.

Example:

1. TSS pollutant caused by development = 184.57 - 18.23 = 166.34

2. 95% removal = 0.95 x 166.34 = 158.03 lbs/yr

E. Compare the 95% removal requirement against the pollutant removal capacity of the rainwater collection/irrigation system:

1. If the capacity of the proposed system does not exceed the 95% removal requirement, then zero impervious cover allowance is allowable.

2. If the capacity of the proposed system exceeds the 95% removal requirement, then proceed with the following calculations to determine the allowable allowance.

   Example: In this case the capacity of the proposed system is being calculated, which will then be used in selection of the appropriate system that meets the capacity requirement.

F. Calculate the allowable pollutant removal capacity of the system, which will be the lesser value of the following:

1. Rated pollutant removal capacity of the proposed system minus the 95% removal requirement; or

2. Baseline pollutant load plus 5% of the TSS pollutant load caused by development.

   Example: The system capacity to be selected must at least be capable of removing the baseline pollutant load plus 5% of the TSS pollutant load caused by development.

   Minimum System Capacity = 18.23 + (0.05 x 166.34) = 26.55 lbs/yr

G. Calculate the developed impervious surface area that would contribute a TSS pollutant load equivalent to the minimum system capacity.

Example: 26.55 = 110 x 0.248 x 32.5 x 0.2267 x area
area = 0.1321 acres = 5,754 ft^2

E. Calculate the impervious cover allowance, which will be the lesser of:

1. The equivalent impervious surface area times 50%; or

2. Site area times 5%.

Example:
Equivalent impervious surface area times 50% =
$0.50 \times 5{,}754\ ft^2 = 2{,}877\ ft^2$

Site area times 5% = $0.05 \times 130{,}680\ ft^2 = 6{,}534\ ft^2$

Maximum allowable increase in impervious cover = $2{,}877\ ft^2$

6.00 Non-Point Source Pollution Control Permit Application

6.1.0 Procedure for Permit Application

A. Submit a complete application to the Village as required in Section 6.2.0 and pay the required application and review fees.

B. The Village will determine if the application is complete according to the checklist in Section 6.2.0

C. If the application is incomplete, the application will be returned to the applicant with all associated fees.

D. If the application is complete, the 30 day technical review period by the Village will begin. If during the 30 day technical review period additional information is required, the applicant will be notified in writing and given 30 days to respond. If the additional information is not provided in writing within the 30 day period, the application may be returned to the applicant.

E. If the additional information is provided, the Village will have 15 days to review the additional information.

F. Informal meetings with the applicant to resolve issues may occur at any time throughout the 30 day technical review period.

G. When the applicant has demonstrated compliance with the standards of the ordinance, proof of fiscal security must be provided to the Village.

H. Following the completion of the above, an NPS Pollution Control Permit will be issued or denied by the Village.

I. The appeal period will begin on the day the permit is issued.

J. Following the resolution of an appeal or if there are no valid appeals filed with the Village during the appeal period, a pre-development inspection must be scheduled after permit issuance and prior to commencing construction. The Village will coordinate a pre-development inspection with the applicant, Village Inspector, Village Engineer, design engineer, contractor, and field engineer.

K. Construction may begin after the expiration of the appeal period and after the pre-development inspection and after the Village issuances of any applicable construction permit. Any construction activity performed prior to the resolution of an appeal is at the risk of the applicant who may have to remove any

improvements made and reclaim the subject property to its prior condition.

6.2.0 NPS Pollution Control Permit Review Submittal Checklist

A. Name, address, phone numbers and fax numbers of owner, engineer, and primary contact person for the development.

B. Detailed location map, description and address of the property.

C. Calculations used to estimate the pollutant loads and means of achieving the performance standards. Description of the BMP's to be implemented to achieve the performance standards for annual pollutant removal and streambank erosion control.

D. Location and schematic of the Best Management Practices (BMPs) and water quality controls.

E. A temporary and permanent erosion control plan designed in accordance with this manual containing the following:

1. Detailed sequence of construction showing different items constructed in each phase. Details of erosion controls that relate to each phase and specifications for and locations of controls.

2. Limits of construction line, location of all access roads, haul roads, equipment storage areas, spoil and topsoil stockpile areas.

3. Location and specification for all structural stabilization, including stabilization of cut and fill areas.

4. Restoration plans for all disturbed areas on the site that include seed, sod and mulch type and rate of application; application technique; watering and fertilization schedule; criteria for acceptance of revegetation.

5. Any additional information required by the Non-point Source Pollution Control Ordinance of the Village of Bee Cave Code of Ordinances.

F. Topographic maps showing the street and drainage layout at a minimum scale of 1" = 100' for tracts to 250 acres; 1" = 200' for tracts to 400 acres, and 1" = 400" for larger tracts. As a minimum, contour lines shall be drawn at 2' intervals for projects up to 400 acres and at 5' intervals for projects greater than 400 acres.

G. Slope maps, at the same scale as the topographic map, depicting slope categories of 0-15%, 15-25%, and over 25%. The slope categories shall be determined by

measuring between contour lines. For 2' contours the average of 5 contour intervals may be used and for 5' contours the average of 4 will be accepted.

H. Map of the areas showing the existing drainage patterns, existing 100-year floodplains using fully developed conditions,drainage conveyance features. Off-site drainage areas that drain through and onto the site shall also be shown.

I. Location and type of soils. This information can be obtained from the County Soil Survey.

J. Vegetative cover map including tree and ground covers. If vegetative water quality control BMPs are proposed, more specific information may be required.

K. Any existing improvements on the site.

L. An engineer's seal, signature and statement certifying that the plan is complete and in compliance with the Non-Point Source Pollution Control Ordinance of the Village of Bee Cave Code of Ordinances.

M. A maintenance plan as required in Section 5.0 of this TCSS Manual and Articles of Association for the Maintenance Association what will be responsible for the BMPs within the development.

N. A cost estimate, sealed by a Registered Professional Engineer for temporary and permanent erosion controls and for water quality control BMPs. A proof of fiscal security in the form approved by the Village will be required prior to issuance of the permit.

O. The party responsible for the construction activity and maintenance of erosion controls.

7.00 BUILDING

7.1.0 General

Building construction within the incorporated limits of the Village and within its ETJ, as applicable, shall comply with the following standards, which are incorporated herein by reference and which are modified herein:

A. 2000 International Building Code, International Conference of Building Officials, latest edition.
B. 2000 International Fire Code, International Conference of Building Officials , latest edition.
C. 2000 International Residential Code, International Conference of Building Officials, latest edition.
D. 2000 International Mechanical Code, International Conference of Building Officials, latest edition.
E. 2000 International Plumbing Code, International Conference of Building Officials, latest edition.
F. 2000 ICC Electrical Code, International Conference of Building Officials, latest edition.
G. 2000 International Private Sewage Disposal Code, International Conference of Building Officials, latest edition.
H. 2000 International Fuel Gas Code, International Conference of Building Officials, latest edition.
I. National Electrical Code, NFPA, latest edition.
J. City of Austin, Texas Building Criteria Manual
    1. Section 1.4.0 "Building Inspection Procedures"
    2. Section 1.6.9 "Building Permit - Residential Permit Information and Checklist".
    3. Section 1.6.11 "Insurance Requirements for Barricade or Work Within the Right-of-Way Permits".
    4. Section 1.9.1 "Order of Building Inspections per Phase".
    5. Section 1.9.2 "Mechanical Inspection".
    6. Section 1.9.3 "Electrical Inspection".
    7. Section 1.9.4 "Plumbing Inspection".
    8. Section 1.9.5 "Landscape Inspection Final".
    9. Section 1.9.6 "Engineering/Environmental Inspection Final".
    10. Section 1.10.2 "Truss Identification".
    11. Section 1.12.0 "Foundation Inspection".
    12. Section 1.14.0 "Required Plans".
    13. Section 1.17.1 "Single Family Attached Residential Existing Duplex Verification".
    14. Section 1.17.2 "Single Family Attached Residential Submittal Checklist".
    15. Section 1.22.0 "Temporary Utilities".

16. Section 1.25.0 "Trench Excavation".
17. Section 1.36.0 "Plumbing Requirements in Unified Development".
18. Section 1.38.0 "Exterior Stairway and Interior Stairway Protection".
19. Section 1.39.0 "Firestop Installation Requirements and Inspections".
20. Section 3.2.0 "Enclosure Devices for Swimming Pools".
21. Section 5.2.0 "Gas Test Requirements".
22. Section 5.5.0 "Cross Connection Control".
23. Section 5.6.0 "Prohibition of Lead in Plumbing".
24. Section 5.8.0 "Mobile Home Plumbing".
25. Section 5.9.0 "Plumbing in the Right-of-Way".
26. Section 5.10.0 "Mobile Home Mechanical Systems".
27. Section 6.2.0 "Housing and Dangerous Building Code Enforcement".
28. Section 6.3.0 "Heating Equipment".
29. Section 6.4.0 "Utility Holds".

7.2.0 Exceptions to the Referenced Standards

7.2.1 General

A. The following exceptions shall apply to the referenced standards.

B. All references to the City of Austin shall be construed to mean the Village of Bee Cave, Texas.

C. All provisions and standards of the Village of Bee Cave Code of Ordinance shall be applicable and shall govern if there is a conflict with the standards referenced in Section 7.1.0.

8.00 ENGINEERING SUBMITTALS

8.1.0 Licensed Engineer Requirements

8.1.1 General

All engineering plans, documents, specifications and reports which are required as a condition of the Village's review and approval shall be prepared in accordance with the Texas Engineering Practices Act.

8.1.2 "Issued for Review"

All engineering plans, documents, specifications and reports submitted for the Village's review shall identify the purpose of the engineering document and shall be labeled as "Issued for Review" and shall contain the licensed engineer's preliminary seal, in accordance with the requirements of the Texas Engineering Practices Act.

8.1.3 "Issued for Construction", "Issued for Permitting", "Issued for Platting".

All engineering plans, documents, specifications and reports which have undergone review by the Village and have been modified or corrected by the applicant's licensed engineer, shall be re-submitted to the Village in its final form, labeled with the appropriate use for which the documents are being released and shall contain the final seal of the licensed engineer, in accordance with the requirements of the Texas Engineering Practices Act.

8.1.4 Licensed Engineer Sealed Documents

The following documents shall be sealed by a licensed engineer:

A. Buildings
   1. Building plans and specifications for work performed in any building or portion thereof in excess of 5000 square feet, except plans and specifications are not required to be sealed for construction of or modifications to a single family dwelling;
   2. Repair or replacement of stairways when structural elements or fire restrictive assemblies are affected by the stairway construction or when the building construction is required to be designed by a licensed engineer;
   3. Installation plans and specifications of roof trusses;
   4. Building plans and specifications of roof drainage systems when the building construction is required to be designed by a licensed engineer;
   5. Building plans and specifications of guard rails when the building construction is required to be designed by a licensed engineer;
   6. All building plans and specifications required to be sealed in compliance with the Americans With Disabilities Act.

B. Drainage

1. Engineering reports of analyses, assessments and designs of:
   a) Drainage computations and storm flow analysis,
   b) Delineations of the fully developed floodplain,
   c) Street drainage design analysis,
   d) Storm inlet design analysis,
   e) Storm drain design analysis,
   f) Open channel design analysis,
   g) Culvert and bridge design analysis,
   h) Stormwater management pond design analysis,
   i) Stormwater management pond maintenance requirements.
   j) Roof runoff collection systems.
2. Building and site development plans and specifications for:
   a) Street drainage,
   b) Storm inlets,
   c) Storm drains,
   d) Open channels,
   e) Culverts and bridges,
   f) Stormwater management ponds,
   g) Stormwater management pond maintenance requirements.
   h) Roof runoff collection systems.
3. Engineering documents as part of submitted requirements for:
   a) Application for Conditional Letter of Map Revision (CLOMR) or for Conditional Letter of Map Amendment (CLOMA),
   b) Application for Section 404 Permit.

C. Water Quality Management

1. Engineering reports of analyses, assessments and designs of:
   a) Opinion of probable construction cost for fiscal security,
   b) Water Quality Control Plan and Engineering Report,
   c) Maintenance plans for water quality controls,
   d) Water quality control phasing plan,
   e) Erosion and Sedimentation Control Engineering Report,
   f) Water quality controls design analysis,
   g) Land application of treated wastewater effluent design analysis,
   h) Roof runoff collection and treatment systems.
2. Building and Site Development Plans and Specifications for:
   a) Water quality controls,
   b) Maintenance requirements for water quality controls,
   c) Erosion and sedimentation controls,
   d) Re-vegetation,
   e) Land application of treated wastewater effluent.
   f) Roof runoff collection and treatment systems.

3. Engineering documents as part of submittal requirements for:
   a) Application for NPS Pollution Control Permit,
   b) Application for NPS Pollution Control Annual Operating Permit

D. Transportation

1. Engineering reports of analyses, assessments and design of:
   a) Traffic Impact Analysis and Parking Analysis,
   b) Pavement design analysis,
   c) Geometric layout of streets, parking lots, driveways, ramps, sidewalks, bicycle paths,
   d) Traffic control analysis.
2. Building and Site Development Plans and Specifications for:
   a) Pavement,
   b) Curbs and ramps,
   c) Driveways within right-of-ways,
   d) Streets, parking lots, clear zones, driveways, bikeways, ramps,
   e) Traffic control analysis.
3. Engineering documents as part of submittal requirements for:
   a) Application for TXDOT approval of construction within its right-of-way,
   b) Application for Travis County approval by construction within its right-of-way,
   c) Application for Village of Bee Cave approval of construction within its right-of-way,
   d) Application for street cut permit,

8.2.0 Content of Engineering Submittals

8.2.1 Non-Residential Building Plan Requirements

A. Complete construction plans including:
   1. Structural;
   2. Architectural;
   3. Mechanical;
   4. Electrical;
   5. Plumbing;
   6. Utility site plan;
   7. Civil site plan;
   8. Fire safety improvements;
   9. Underground storage tanks and dispensers.

B. Building specifications

C. Energy calculations

D. Water and wastewater tap approval

E. Health department approval

F. Industrial waste approval

8.2.2 Drainage

A. CLOMR or CLOMA: Provide information as required by Section 1.2.6 B "Flood Plain Delineation", City of Austin, Texas Drainage Criteria Manual.

B. Stormflow Analysis: Provide documentation of conformance with the standards for:
1. Fully developed watershed conditions;
2. Flow reduction benefits of upstream detention ponds;
3. Method of stormflow analysis;
4. Rainfall and runoff parameters and coefficients;
5. Drainage area delineations;
6. Peak flow calculations.

C. Street flow Analysis: Provide documentation of conformance with the standards for:
1. 25-year and 100-year peak flows and velocities analyses;
2. Delineation of ponding areas;
3. Street cross flow calculations;
4. Flow through intersections;
5. Spread of water in gutters and right-of-ways;

D. Inlets: Provide documentation of conformance with the standards for:
1. Storm inlet hydraulic capacity;
2. Storm inlet hydraulic head;
3. Inlet system layout.

E. Storm Drains: Provide documentation of conformance with the standards for:
1. 25-year and 100-year peak flows and velocities analyses;
2. Culvert pipe, junction and outlet sizing analyses;
3. Hydraulic gradient and velocities.

F. Open Channels: Provide documentation of conformance with the standards for:
1. Uniform flow calculations;
2. Gradually varied flow calculations;
3. Rapidly varied flow calculations;

4. Manning's roughness coefficients;
5. Design for channels, including velocity, roughness coefficient, slope, side slopes, curvature, bottom width, and freeboard;
6. Design analysis for channel drop structure including approach configuration, chute configuration, and downstream apron configuration;
7. Design analysis for energy dissipators,
8. Meanders.

G. Culverts: Provide documentation of conformance with the standards for:
1. Design analysis for entrance conditions;
2. Discharge velocities analysis;
3. Selection of culvert size and flow classification, including inlet control conditions, outlet control conditions;
4. Headwater conditions;
5. Tailwater conditions;
6. Type of flow for bridge design;
7. Hydraulic conditions for bridge design;
8. Selection of bridge size.

H. Stormwater Management Ponds: Provide documentation of conformance with the standards for:
1. 2-, 10-, 25-year and 100-year storm runoff analysis for: pre-developed and post development conditions;
2. Dam safety analysis as required by the TNRCC;
3. Hydrograph routing , peak velocity calculations, and peak pond level calculations;
4. Outlet structure design analysis;
5. Detention storage calculations.

I. Stormwater Management Concept Plan: The Concept Plan for drainage shall show the following:
1. Project name and address;
2. Vicinity map;
3. Site Boundary;
4. General Site Layout;
5. Existing and proposed drainage area boundaries for all discharge points from the site;
6. Discharges and velocities at each discharge point for the 2-, 10-, 25- and 100-year storm events for existing and ultimate development conditions;
7. Existing and developed land use;
8. Existing and developed time of concentration flow paths;
9. SCS soil types and hydrologic soil groups;
10. Proposed drainage and stormwater management improvements;
11. Calculations demonstrating the adequacy of the intervening system to

convey the fully developed 100-year storm from the entire drainage area;

12. All backup calculations and summaries of the computer models.

8.2.3 Transportation

A. Geometric Design Criteria: Provide documentation of conformance with the standards for:

1. Grades;
2. Vertical alignment;
3. Vertical curves;
4. Horizontal radii;
5. Intersection design, including vertical alignment, horizontal alignment, radii, centerline offsets;
6. Drainage structures;
7. Sight distance;
8. Median and median breaks;
9. Tapers;
10. Turn lanes and channelization;
11. Environmental considerations, including setbacks and water quality controls.

B. Classification Design Criteria: Provide documentation of conformance with the standards for:

1. Identification of functional characteristics;
1. Identification of ROW widths; paving sections; design speed; typical length of street; typical spacing of cross streets; minimum centerline radius.

C. Traffic Impact Analysis (TIA): Provide documentation of conformance with the standard for:

1. Determination of the study area of the TIA;
   a) Study area,
   b) Target year for project build-out.

2. Trip Generation
   a) Proposed land use or zoning category for each tract,
   b) Generation rates based on proposed land use intensity (if known) or most intense use permitted for daily and peak hour.

3. Trip Distribution
   a) Percentages for directional distribution,
   b) Sources of information.

4. Traffic Assignment
   a) Roadway network in the study area,
   b) Access points and driveways.

5. Traffic Forecast
   a) Existing 24-hour peak traffic, including copies of field data,
   b) Assumptions on annual growth rate or other source of future background traffic at time of build-out.

6. Capacity Analysis for Street Intersections
   a) Intersection/roadway geometry (existing and proposed),
   b) Traffic control (signalized or unsignalized),
   c) Traffic characteristics (turn movements, percent trucks),

7. Traffic Impact Assessment
   d) Impacts expressed in quantitative terms,
   e) Adverse impacts which cannot be avoided,
   f) Transit issues (if applicable).

8. Recommendations
   g) Roadway improvements,
   h) Traffic operation modifications,
   i) Limitation of land use intensity.

9. Certification Statements

D. Pavement Design: Provide documentation of conformance with the standards for:
   1. Total number of lanes;
   2. Total number of curbs;
   3. Number of layers (flexible pavement design);
   4. Subbase types;
   5. Project length (rigid pavement design);
   6. Lane width;
   7. Curb height;
   8. Layer thickness;
   9. Stiffness coefficient;
   10. Flexural strength, tensile strength, elastic modulus (rigid pavement design).

E. Subbase Design: Provide documentation of conformance with the standards for:
   1. Subbase thickness;
   2. Subbase erodability;
   3. Subbase friction;
   4. Elastic modulus.

F. Subgrade Design: Provide documentation of conformance with the standards for:
   1. Swelling potential;
   2. Swell rate;
   3. Potential vertical rise;
   4. Subgrade erodability;
   5. Subgrade friction;
   6. Stiffness coefficient;
   7. Subgrade k-value;

G. Clear Zone Design: Provide documentation of conformance with the standards for:
   1. Definition of design speeds;
   2. Definition of required setbacks;
   3. Landscaping placement within medians;
   4. Line of sight at intersections;

H. Bikeway Design: Provide documentation of conformance with the standards for:
   1. Design speed;
   2. Curvature design;
   3. Grade design;
   4. Ramps detail;
   5. Intersections and crossings details;
   6. Drainage grates details.

I. Application for Street Cut Permit
   1. Traffic Control Plan

J. Application for Temporary Use of Right-of-Way
   1. Traffic Control Plan

K. Traffic Control Plan: Provide documentation of conformance with the standards for:
   1. Activity location, right-of-way and curb lines of the street sought to be closed or blocked;
   2. Areas of the street to be closed or blocked;
   3. Proposed detour routes;
   4. Location and type of all barricades, signals, signs, cones and other warning devices;
   5. The times of the day and total number of days the street will be blocked;
   6. Property access for public, private and emergency traffic;
   7. Trench coverings.

L. Parking Lot Design: Provide documentation of conformance with standards for:

1. Parking space ratio and total required parking;
2. Parking space layout, including angle of parking (degrees); width of stall; depth of stall 90 degrees to aisle; width of aisle; width of stall parallel to aisle; module width;
3. Layout of overall parking lot; circulation corridors and aisles; end islands; entrance drives; loading spaces;
4. Turning zones;
5. Handicapped parking;
6. Vertical clearances;
7. Fire zones;
8. Pavement design for parking, loading, aisles, solid waste storage, and driveways;
9. Safety barriers;
10. Pedestrian, cyclists and motorists internal circulation;
11. Queing space layout;
12. Drainage control;
13. Water quality controls;
14. Compact parking;
15. Pedestrian linkages;
16. Reserved spaces;
17. Fees and access controls;
18. Peak hour parking demand.

8.2.4 Utilities

A. Electrical Utilities: Provide documentation of conformance with the standards for:
   1. Service conductors, service conduits, service disconnect;
   2. Color coding of service conductors;
   3. Delineations of septic and drain field systems and swimming pools with respect to service boxes, pull boxes, transformers, secondary risers, power poles, service conduits, and metering equipment;
   4. Temporary service requirements;
   5. Grounding systems;
   6. Overhead secondary installations from overhead distribution systems;
   7. Underground secondary installations from overhead distribution systems;
   8. Underground primary and secondary installations from underground distribution systems;
   9. Wiring installations;
   10. Utilization equipment;
   11. Power production interface;
   12. Meters and metering equipment;
   13. Transformer vaults;
   14. Street lights.

B. Building and Site Development Plans and Specifications for Water and Wastewater Utilities - General Requirements

1. Approved easements and/or permits for right-of-way and crossings;
2. Date of plans and revisions;
3. North arrow and scale;
   a) Plan view horizontal scale: 1" = 100', 50', 40', or 20',
   b) Vertical scale: 1" = 10', 5', 4' or 2',
4. General location map;
5. Construction notes and specifications;
6. Subdivision file number, and all required permit numbers;
7. Volume and page of recorded easement and of any temporary working space;
8. Filed preliminary plat and final plat;
9. Size, pipe material and location of main with respect to the easements;
10. Property lines and dimensions, legal description, lot and block numbers, right-of-way dimensions, curb and sidewalk locations and street names;
11. Location, size and material of all existing water and wastewater mains, lines and services and direction of flow in the wastewater mains;
12. Location, size and description of other utilities where they may conflict with water or wastewater mains or other service lines;
13. Curve data for roads, property lines, and water and wastewater lines;
14. Street address for all existing structures shown on the lots where the structures are located.

C. Water System Construction Plans

1. Stations of all proposed connections to existing or proposed water mains;
2. For proposed connections to water mains or facilities to be constructed by others, identification of the project by name, the design engineer, and the service extension number;
3. Station numbers for mains 12" or larger, identified for beginning points, points of curvature, points of tangent, points of reverse curve, points of intersection, valves, fire hydrants, other appurtenances and grade breaks;
4. Station number for mains 12" or larger, identified where they cross any other utility;
5. Details of appurtenances and structural details and structural dimensions;
6. Location of all existing and proposed water services, water mains, valves and fire hydrants;
7. 100-year floodplain limits and water quality buffer zone limits;
8. Reference noting the field book notes for the original survey;
9. Profile view for all water mains 12" in diameter and larger, including: existing ground profile and proposed street finish grade or subgrade, station numbers and elevations of all utility crossings; station numbers and soil geology information at stream crossings to evaluate the need for special surface restoration; identification of pipe size, percent grade and

pipe material to be used; station numbers and elevations for starting points, ending points, point of intersection, grade breaks, valves, fire hydrants, air release valves, pressure/flow regulating valves, and at intermediate points every 100 feet;

10. Excavation layouts (permanent or temporary) for excavations exceeding five (5) feet in depth.

D. Building and Site Development Plans and Specifications for Wastewater System

1. Station numbers at all proposed connections to existing or proposed wastewater mains;
2. For proposed connections to wastewater mains or facilities to be constructed by others, identification of the project name, the design engineer and the service extension number;
3. The location, alignment and structural features of the wastewater main, including manholes and concrete retards, if applicable;
4. Station number for beginning points, ending points, points of curvature, points of tangent, points of reverse curve, points of intersection, manholes, clean-outs and other appurtenances;
5. Details of all required appurtenances;
6. Location of all existing and proposed wastewater services, mains and manholes;
7. 100-year floodplain limits and water quality buffer zone limits;
8. A reference noting the field book notes for the original survey;
9. Profile view for all wastewater mains including: the existing ground profile and proposed street finish grade or subgrade or finish grade if not under pavement; station numbers and elevations of all utility crossings; station numbers and soil geology information of stream crossings to evaluate the need for special surface restoration; identification of the pipe size, percent grade and pipe material to be used, station numbers and elevations for starting points, ending points, points of intersection , grade breaks, manholes, clean-outs, and at intermediate points every 100 feet;
10. Elevation on the profile showing finish floor elevations of all existing structures the flow line elevation of the plumbing for active septic tank or other disposal system where it exits from the structure; and ground elevation at the middle of each adjacent vacant lot to ensure gravity service is possible from the lot to the main in the future;
11. Excavation layouts (permanent and temporary) for excavations exceeding five (5) feet in depth.

E. Water System Design Report: Provide documentation of conformance with the standards for:

1. Size and capacity determination including average day demand; peak day demand; peak hour demand; maximum static pressure; normal operating pressure; and emergency fire flow demand;

2. Storage requirements;
3. Sizing of water mains;
4. Looped system design;
5. Identification of piping materials and appurtenances;
6. Depth of cover;
7. Drain valve locations;
8. Gate valve locations and backflow preventor locations for fire lines;
9. Air/vacuum release valve locations;
10. Identification of locations and types of valves including fire hydrant lead valves, shut outs valves, dead end valves; branch line separation valves; intersection valves with fire hydrants; main line valve between fire hydrants; valves at critical shut off locations;
11. Fire hydrants;
12. Conflict relocations;
13. Permit requirements.

F. Wastewater System Design Report: Provide documentation of conformance with the standards for:

1. Determination of wastewater flow including residential flow; non-residential flow, inflow and infiltration; peak day weather flow; peak wet weather flow; minimum flow;
2. Determination of pipe size, including capacity and velocity analysis;
3. Determination of pipe grade;
4. Identification of materials and appurtenances;
5. Location of wastewater main;
6. Separation distances;
7. Steep grades;
8. Depth of cover;
9. Turbulence;
10. Manholes, including locations; spacing; covers; corrosion prevention; ventilation;
11. Inverted siphons;
12. Service lines, including sizes; grades; grades breaks;
13. Conflict relocations;
14. Permit requirements.

G. Wastewater Lift Station Design Report: Provide documentation of conformance with the standards for:

1. Site location;
2. Flow development including maximum wet weather flow (design flow); maximum dry weather flow, average dry weather flow; minimum dry weather flow;
3. Wet well design including storage volume; pump cycle time; "pump on" and "pump off" levels;

4. High and low level alarm system;
5. Wet well detention time;
6. Static head;
7. Net positive suction head;
8. Suction piping design;
9. Force main design;
10. Odor control;
11. Air release valves;
12. Sulfide generation control;
13. Head loss curves;
14. Buoyancy potential;
15. Water hammer;
16. Suction specific speed;
17. Stiffness ratio;
18. Energy calculations;
19. Sump design;
20. Station design including monorails; ceiling space and clearances; air conditioning; voltage starters; high efficiency frames; electrically powered personnel lift; entrance hatches; gate valve operators; potable water supply; back up power source with looped service or diesel generator; flow meters;
21. Construction specifications;
22. Permit requirements.

H. Low Pressure Wastewater Service Design Report: Provide documentation of conformance with the standards for:
1. Calculation of flows using the Lift Station Criteria, disregarding the infiltration /inflow component;
2. Gravity flow analysis;
3. Connection details to gravity main or lift station;
4. Cleanout and valve assembly details;
5. Low pressure discharge line size;
6. Separation between lower pressure sewer line and water lines;
7. Depth of cover;
8. Grinder pump facility details;
9. Private septic tank effluent pump facility details;
10. Permit requirements.

I. Building and Site Development Plans and Specifications for Utility Construction in Public Right-of-Way
1. Excavation plans;
2. Jacking and boring details;
3. Shoring and steel plate details;
4. Signs, barricades and warning devices details;

5. Backfill of excavated areas detail;
6. Utility adjustment details;
7. Restoration details of excavated areas including permanent pavement repairs, curb and gutter repairs; sidewalk repairs.

8.2.5 Water Quality Management

A. Fiscal Security: Provide documentation of conformance with the standards for:
   1. Opinion of probable construction cost for:
      a) Temporary erosion and sedimentation controls,
      b) Permanent erosion and sedimentation controls,
      c) Water quality controls.

B. Building and Site Development Plans and Specifications for the Water Quality Control Plan.
   1. Location of proposed water quality controls;
   2. Type of water quality control;
   3. Monitoring sites for the control;
   4. Delineation of water quality and access easements or lots;
   5. Delineation of areas for irrigation in conjunction with retention and irrigation water quality control;
   6. Construction details and specifications of proposed water quality controls;
   7. Sequencing of the construction project;
   8. Temporary erosion and sedimentation control plan;
   9. Impervious cover calculations;
   10. Maintenance requirements.

C. Water Quality Control Engineering Report: Provide documentation of conformance with the standards for:
   1. The methodology and water quality control strategy proposed to achieve the target pollutant concentrations;
   2. Calculations illustrating the undeveloped and developed pollutant concentrations and loads expected for the proposed development;
   3. Calculations illustrating expected pollutant concentration reductions for the proposed controls;
   4. Permit requirements.

D. Water Quality Phasing Plan (with the Water Quality Engineering Report): Provide documentation of conformance with the standards for:
   1. Delineation of each phase of water quality control construction;
   2. Water quality engineering information necessary to construct the proposed development for each phase of development.

E. NPS Annual Operating Permit Application

1. Delineation of the number and location and type of each water quality control;
2. Water quality report;
3. Maintenance plan for all required water quality controls;
4. Concurrence letter certifying that the engineer has inspected the control and that it is operating as designed.

F. Erosion and Sedimentation Control Engineering Report: Provide documentation of conformance with the standards for:
1. Drainage control analysis;
2. Sedimentation control and filtration analysis;
3. 2-year frequency flood peak flow and velocity for temporary control;
4. 25-year and 100-year frequency flood peak flows and velocities for permanent controls;
5. Identification of drainage patterns and disturbed areas;
6. Identification of drainage control points;
7. Identification of the function of the controls, including diversion, flow spreading, detention/filtration, and detention/sedimentation;
8. Selection of control devices;
9. Design computation for flow through barriers; diversion, interceptor and perimeter dikes; interceptor and perimeter swales; stone outlet structures; rock berms; silt fences; sediment filter dikes; sediment basins; sediment traps; stabilized construction entrances; pipe slope drains;
10. Design computations for permanent controls including diversions; grass-lined swales; level spreaders; stone riprap; gabions; subsurface drains; land grading; grade stabilization structures, paved chutes, and paved flumes;
11. Vegetative and re-vegetative practices;
12. Permit requirements.

G. Building and Site Development Plans and Specifications for the Erosion and Sedimentation Control Plan.
1. Detailed sequence of development showing phases of construction and at what time and what specific controls are required during each phase of the development;
2. Schematic representation of each control measure for each phase of construction, with adequate specifications and details for the controls;
3. For detention/filteration control devices, a summary of calculations for runoff from the 2-year storm, including runoff flow rate and assumed flow capacity for each barrier;
4. Approved areas for materials and equipment storage and staging, construction traffic, parking, vehicular maintenance, concrete truck washing, and, if appropriate, vehicle washing;
5. Temporary spoils storage areas, including size, time of use, and ultimate

re-vegetation schedules;

6. On-site permanent spoils disposal areas, including size, depth of fill and re-vegetation procedures;
7. Contour maps, showing lightly dashed lines for existing contours and solid lines for proposed contours, with each having a contour interval of two (2) feet;
8. A map of suitable scale on which are indicated all contributing drainage subareas both on and off-site;
9. Re-vegetation plans for all disturbed areas including topsoil requirements; seed, sod, and mulch type and rate of application; watering requirements, application technique; maintenance requirements for each specific area, delineation of temporary and permanent vegetation; clear definition of criteria to be utilized in determining when acceptable re-vegetation has taken place;
10. Delineation of specific areas where specified slope stabilization techniques are to be utilized and the extent of stabilization to be achieved; and all detention, sedimentation, or sedimentation/filtration ponds;
11. The identity, address and phone number of the owner, the owner's engineer, and the designated representative(s) of the owner who will be responsible for the maintenance of the controls and who can authorize appropriate changes to the control plan, if it is discovered to be inadequate;
12. Dust control.

H. Building and Site Development Plans and Specifications for the Re-Vegetation Plan for Erosion and Sedimentation Control

1. Description of vegetation currently existing within the limits of the development;
2. Description of vegetative cover to be installed, including temporary and permanent vegetative covers;
3. Results of analysis of available soil nutrients (N, P, K, Zn, Mn, Cu, and S) for materials proposed for use as topsoil and a discussion of nutrient amendments required to support the proposed vegetative cover;
4. Specifications of re-vegetation, including site preparation; soil nutrient amendments; seed bed preparation; seeding rates and composition; mulching rates and composition;
5. Specifications of re-vegetation using transplanted live plant materials, including site preparation; soil nutrient amendments; preparation of substate; transplanting rates and composition; mulching rates and composition;
6. Maintenance plan for re-vegetation areas including irrigation, replanting of bare areas; erosion control, fertilizer application; weed control.

I. Water Quality Control Design Report (as part of the Water Quality Engineering

Report): Provide documentation of conformance with the standards for:

1. Delineation of contributing and non-contributing areas to the water quality volume;
2. Water quality volume calculations;
3. 25-year and 100-year floods peak flows rates and routing through water quality ponds;
4. Maintenance design requirements;
5. Selection criteria for type of water quality controls;
6. Design calculations for sizing water quality controls;
7. Calculation of pollutant removal efficiencies;
8. 2-year flood detention analysis;
9. Calculations of baseline pollutant loads;
10. Calculations of developed condition pollutant loads;
11. Calculations of requirements for reductions in pollutant loading;
12. Evaluation of the water quality controls to meet the required pollutant reduction;
13. Calculation of pollutant removal efficiencies.

J. Plan for Land Application of Treated Wastewater Effluent: Provide documentation of conformance with the standards for:

1. Determination of Depth of Effective Soil;
   a) General soil survey,
   b) Detailed soil survey.
2. Calculation of living unit equivalents;
3. Delineation of irrigation areas;
4. Delineation of slopes in excess of 15 percent gradient;
5. Delineation of critical environmental features and water quality buffer zones and easements;
6. Delineation of the 100-year floodplain;
7. Irrigation system details.

K. Application for Non-Point Source Pollution Control Permit

See the submitted requirements in Section 6.0 of this TCSS Manual.

9.0 SITE PLAN REQUIREMENTS

9.1.0 Cover Sheets

Show the following:

A. Date of submittal;
B. Project title and street address;
C. Property owner, address, telephone number;
D. Designer(s) company name, address, telephone number (include same for Planner, Architect, Landscape Architect, and Engineer);
E. Name of watershed and classification;
F. State if subject to or exempt from the Non-point source pollution control regulations;
G. Indicate by note if any part of the project is within a 100-year floodplain or within a water quality buffer zone;
H. Legal description of property by lot, block and subdivision name, or by metes and bounds, if recorded, indicate the book and page number;
I. Site location that clearly indicates the precise location of the tract (4" x 4" minimum size);
J. Related Case No.(s) _____ (Zoning/Subdivision, etc.);
K. Revision/Correction Table as shown in Exhibit I (See attached);

9.2.0 Notes

A. Standard Notes

9.3.0 Approval Blocks

A. Approval Block for TxDoT, if part of the project is within Texas Department of Transportation R.O.W.;
B. Approval Block for Travis County, if part of the project is within the County R.O.W.;
C. Approval Block for the Village of Bee Cave;
D. Approval block for the utility provider; and
E. Approval block for the fire department.

9.4.0 Base Information

The following information shall be included on each site plan:

A. Project title;

A. North arrow;
B. Engineering scale shall be 1" = 10', 1"=20', 1" = 30', or 1" = 40'; if the project is too large, 1" = 50', with detail at 1" = 20';
C. Designer(s) company name, address, and telephone number (seal and signature of the engineer preparing plans, and the date the plans were sealed by the engineer);
D. Leave a blank space (approval space) in the lower right hand corner at least 5"x3" on each sheet;
E. Boundary lines with bearings and dimensions;
F. Village incorporated limit line and ETJ limit line;
G. Street Address;
H. Show natural topography of the site and land located within 100 feet of the site, at two-foot elevation intervals with a maximum 100-foot horizontal interval distance between lines;
I. Existing and proposed streets, alleys and private drives adjacent to and within property including median cuts; existing, dedicated right-of-way should be indicated next to street name; proposed right-of-way and all pavement widths;
J. All existing and future dedicated easements;
K. Location of all existing and proposed electric utility facilities on the site and adjacent right-of-ways;
L. Exact locations and types of all utility lines, underground and overhead, existing and proposed;
M. Location of all proposed and existing structures to remain; indicate any demolitions by dashed footprint;
N. Boundary of all zoning districts on or near the site; all existing adjoining land uses;
O. Location of all buildings within 50 feet of site;
P. Finished floor elevations;
Q. Show limits of construction, including access drives;
R. In tabular form, indicate the following information concerning the site within the Village limits:
    1. Total area of site;
    2. Total floor area ratio to each zoning district within the Village limits;
    3. Total impervious cover (in sq. ft.) for each zoning district within the Village limits;
    4. Percentage of site covered by impervious cover;
    5. Total building coverage (in sq. ft. and %) for each zoning district within the site;
S. Show dimensions to the nearest one-half foot of all existing and proposed buildings;
T. Show location of parking lots and vehicle use areas, landscape islands, peninsulas, and medians; amenities, walls, fences, sidewalks, and all other land improvements;
U. Label all roadways, drives, overpasses, bridges, culverts, and decorative pavers and identify as designed to support the loads imposed by heavy fire department

apparatus;

V. The locations, types and limits of existing site improvements to be retained (structures, parking lots, planted areas, etc.);

W. The location of 25-year and 100-year floodplains, water quality buffer zones, storm sewers, and easements and centerline of existing watercourses, drainage features; note on the cover sheet if a 100-year plain or water quality buffer zone exists on site;

X. If not on central sewer system, delineate drain field;

Y. Location of all existing and proposed fire hydrants, including all existing public fire hydrants located within 500 feet of property boundaries;

Z. Existing or proposed garbage pickup location(s) if dumpsters are proposed;

AA. In tabular form indicate the following information for each building:

1. Proposed use and the square footage for each use within each structure on the site;
2. Number of stories;
3. Actual height (nearest one-half foot);
4. Finished floor elevation(s);
5. Foundation type;
6. Total square footage, for building and for each floor;
7. Type of restaurant (drive-in/fast food, limited, general), type of office (administrative and business, medical, professional), number of rooms for hotels or similar facilities, number of employees, and/or number of children for proposed school and day care services, if applicable;
8. Number of residential use types and sizes, if applicable;
9. Amenities, such as swimming pool, patio, etc.;

BB. Distances between buildings, building setbacks and front street, side street, interior and rear yards; tie buildings to site in two different directions; show all structural connections between buildings such as overhead walkways, landings, or roof attachments;

CC. Widths of all unobstructed access roadways with appropriate finished grades, widths, lengths, turnarounds, and turning radii (T-section, hammerhead, cul-de-sac);

DD. All frontage roads, intersections, entrance/exit ramps, and driveways abutting and adjacent to subject property within 300 feet of side property lines (or indicate that there are none);

EE. Texas Department of Transportation or Travis County centerline stationing if driveway connection to State or County highway is proposed;

FF. All driveway dimensions and design specifications; dimension driveway widths, driveway curb return radii, and profiles of finished grades; number on site plan when there are several proposed driveway approaches;

GG. Proposed operation of driveways on site plan (i.e. one-way or two-way operation), identifying and labeling all physical barriers to vehicular access;

HH. On undivided roadways, show existing driveways on opposite side of street within 120 feet of site driveways, or indicate in a note if there are none;

II Physical obstructions (utility poles, trees, storm sewer inlets, etc.) in right-of-way which could affect sidewalk/driveway locations;

JJ. Dimensions of vertical clearance within fire lanes, including tree limbs, for all driveways and internal circulation areas on site, where overhead clearance is restricted;

KK. All off-street parking; number of required and provided parking spaces including location, number and type (standard, compact, handicapped) of actual parking spaces; dimension parking stall depth and width; stall angle, aisle width, and width on internal driveways; number each parking space; show structural supports, turning radii, circulation, and ramp grades in parking garages; identify number and location of compact spaces;

LL. Handicapped parking spaces meeting Site standards;

MM. Accessible route of travel connecting all accessible elements and spaces on the site that can be negotiated by a person using a wheelchair and is usable by persons with other disabilities (indicated by dotted lines, a shading pattern or other identifiable legend);

NN. Note on the plan indicating that each compact parking space must be identified by a sign stating "small car only" and signs posted on site directing motorists to such spaces;

OO. Off-street loading spaces, if required;

PP. Location and type of bicycle parking;

QQ. Queue spaces or queuing areas for drive-through uses;

RR. Location and width of sidewalks;

SS. The location and design of all pedestrian sidewalks ramps related to the construction of this site;

9.5.0 Additional Requirements (if applicable)

9.5.1 Compatibility Standards

A. Land use map showing all land uses adjacent to or across the street from the subject tract.

B. Building elevations with architectural elements; architectural elements such as windows, roofs, doors, exterior materials, or other design elements which will demonstrate that the proposed building(s) will by sympathetic to structures on adjoining properties

C. Setbacks, when adjacent to residential uses or zoning;

D. Intensive recreational uses such as swimming pools, playgrounds, tennis courts, etc.

E. Cross-section(s), giving a horizontal view of all structures and the proposed height of each structure to scale

9.5.2 Group Homes

The following is required when a project is for any type of group home:

A. A vicinity map showing all existing group homes within a one-half mile radius of the site.

9.5.3 Sexually-Oriented Non-Residential Establishments:

The following is required when a project is for any type of sexually-oriented commercial establishments and adult oriented businesses:

A. A land use map of the adjacent land uses on each lot located within 1,000 foot radius of the site.

9.5.4 Off-Site Parking

The following information is required when a project is requesting off-site parking:

A. Location of all sidewalk pedestrian ramps between the off-site parking and the public entrances of the use, if handicapped spaces are located off-site;
B. Legal and practical walking distance between the nearest off-site parking space and the nearest pubic entrance of use;
C. Note on the plan indicating that signage will be provided as required in accordance with the sign ordinance of the Village of Bee Cave Code of Ordinances.; one sign at the off-site parking facility indicating the property or use which it serves, and one sign on the use site indicating location of the off-site parking;
D. Note on the plan indicating days and hours of operation for the proposed use and the uses from which spaces are being leased;

9.6.0 Drainage Plan

In addition to the Base information, sufficient information to reflect the existing conditions just prior to the proposed development are to be shown, but not limited to the following:

A. Legible licensed engineer's seal, signature, and date;
B. Drainage area map including contributing drainage areas to storm sewer and/or inlet tie-ons;
C. Drainage area maps for the offsite contributing areas passing through site existing impervious cover, including buildings and surrounding information: structures, drainage release points, etc.;
D. Direction, location, and quantity of peak 2-, 25-, and 100-year flood flows from

off-site in existing conditions.

E. Indicate 2-, 25- and 100-year flows from off-site in existing condition;

F. Delineation of the fully developed 2-, 25- and 100- year floodplains, or, if applicable, a note stating that no 100-year floodplain exists on the site existing storm sewer systems on site or adjacent streets;

G. Delineation of the centerline of waterways, and the average water surface elevation of lakes, ponds, and springs contours at two-foot intervals;

H. Sufficient information to reflect the fully developed conditions of the proposal is to be shown, but not limited to, the following:

1. Developed drainage areas and proposed grading with two-foot contours;
2. Curbs, retaining walls, and other structures indicate elevations at critical points on driveways, curbs, etc.;
3. Overflow points and control elevations;
4. Construction details for control devises, curbs, walls, channel, swales, etc.;
5. Direction of flow from building roofs and outlet locations; and
6. Direction of flow from gutters; pass through flow rates, if any;
7. Shade in limits of ponding at overflow elevation and give cubic feet of storage at the maximum storage elevation overflow points and control elevations for overflow structures;
8. Action and direction of unrestricted flow from site, if any, with calculations;
9. Storm drainage profiles and plans (swales, channels, pipes, culverts, ...) including % grade, HGL 25, HGL 100, Q 25, Q100, V 25, V 100, depth of flow 25 and 100, and Manning's Roughness coefficients ("n" values);
10. Hydrographs or hydrologic tabulation for proposed 25-year peak-flow rate and two-year peak flow rate;
11. Hydrologic summary of existing and proposed conditions in tabular form:
    a) Area of each drainage area;
    b) Time of concentration;
    c) Distance of flow where the time of concentration is measured;
    d) Slope of site where the time of concentration is measured;
    e) C 25 and C 100 values;
    f) Required storage volumes for up to 100-year storm;
12. Calculations and formulas for discharge or control structures (for 2-, 5-, 10-, 25-, 50-, and 100-year storms), pipes, inlets, etc. Discharge pipes should not be less than six inches. In the event that less than six inches must be used, every effort should be made to mitigate the "clogging" potential. Direction of flow must be at an angle less than 45 degrees with the curb line. Discharge across a sidewalk area will not be allowed. A channel section can be used under the sidewalk area, provided it is covered and the outlet device utilizes sheet flow methods.
13. Location and limits of filtration/sedimentation pond, details and design information and calculations.

9.7.0 Construction Details

The following items or notes should be shown:

A. Include in the construction detail sheets any required structural walls, inlets, sedimentation/filtration and detention inlet and outlet controls, etc.;
B. Show adequate dimensions, layout details, and general notes adjacent to all details;
C. Include traffic control plan when working in street;
D. If driveways are proposed, a Village standard driveway detail shall be shown to be constructed.

9.8.0 Environmental Site Plan and Report Submittal Information

This document establishes submittal requirements for all environmental ordinances.

A. A professional engineer's seal, signature, and statement certifying that the plan is complete, correct, and in compliance with the Village of Bee Cave Code of Ordinances is required for all projects.
B. An introduction which states project acreage, watershed and classification, a description of proposed development, a description of project phasing, if phasing is proposed;
C. An explanation of and documentation for any special exception or waiver claimed;
D. Drainage area map showing the location of all waterways within the tract or which impact the tract, the location of the 100-year floodplain, the area and acreage of upstream drainage, and the location of the water quality buffer zone;
E. Discussion of the following issues, if applicable to the project:
    1. Proposed and existing drainage patterns;
    2. Proposed method of treating both quantity and quality of stormwater run-off;
F. Proposed extent of floodplain modification, if applicable;
G. Critical Environmental Features within the project and known features within 150 feet of the project;
H. Discuss all proposed variances and provide letter of variance request addressing proposed Findings of Fact;
I. Requests for consideration of alternatives to the requirements of the Non-Point Pollution Control Ordinance of the Village of Bee Cave Code of Ordinances. These shall include any written request for consideration of an alternative or innovative water quality control which differs from the standards of the Village, and information to demonstrate that the propose control provide an equivalent level of water quality as the standard controls;
J. Description and location of any known Underground Storage Tanks within the

project boundary;

K. Irrevocable proof of fiscal security for erosion and sedimentation controls and water quality controls;

L. Explanation of spoil disposal locations or driveway alignments;

M. Existing and proposed drainage patterns;

N. Proposed cut and fill greater than four feet;

O. Proposed impervious cover and net site area information;

P. Transfer of Development Intensity Information;

Q. The methodology and water quality control strategy proposed to achieve the target pollutant load reductions;

R. Calculations illustrating the target pollutant loads expected for the proposed development with an accompanying explanation of how these figures were derived;

S. Calculations illustrating expected pollutant load reductions for the controls proposed with an accompanying explanation of how these figures were derived; and

T. Special conditions approved by the Village for installation or maintenance of proposed water quality controls used to achieve the target pollutant load reductions.

9.8.1 Cover Sheet

A. Provide a cover sheet which contains the following information:

1. Name of project;
2. Watershed name and classification;
3. Application submittal date;
4. Subject water quality ordinance;
5. Statement whether site is located;
6. Statement whether an operating permit for water quality controls is required;

B. Erosion and Sedimentation Control and Tree Protection Plan

This plan must be on a separate page labeled "Erosion and Sedimentation Control and Tree Protection Plan". This plan must be a topographic map with two-foot contour intervals, at a scale of 1"=50 feet or less, and sealed by a Professional Engineer. Symbols used to show controls must be clear and distinctive. The plan must contain the following information:

1. Location and type of all proposed temporary erosion controls on a plan view with existing topographic information;
2. Contributing drainage area information for all erosion controls;
3. Location and type of all permanent erosion and sedimentation controls, permanent water quality controls, and flood controls;

4. Existing and proposed grade(s);
5. Finished floor elevation(s);
6. All proposed development including all utilities proposed to be part of development permit;
7. Contractor staging area(s) and vehicular use area(s);
8. Location of existing or proposed water quality or detention controls;
9. Temporary or permanent spoils storage areas; include size, time of use, and ultimate restoration schedules;
10. All waterways within the tract or which impact the tract and the location of the 2-, 25- and 100-year floodplains and the area of upstream drainage;
11. Location of Water Quality Buffer Zone (WQBZ);
12. All proposed floodplain improvements;
13. Location of known Underground Storage Tanks;
14. Location of all Critical Environmental Features and their required setbacks;
15. Detailed sequence of construction schedule including which phases of construction will be done at which time. Include specific erosion and sedimentation controls and tree protection measures for each phase development. Include the required pre-construction meeting. (may be located on the general notes sheet);
16. Limit of construction line encompassing all areas to be disturbed, enclosing all areas of natural vegetation on the site which are to be left undisturbed;
17. Specific locations where special slope stabilization techniques are to be utilized and the extent of slope stabilization to take place and the technique used. (may be located in the general notes sheet);
18. Restoration plans for all disturbed areas on the site;
19. Standard Erosion Control Notes. (may be located in the general notes sheet);
20. A survey of all trees of six (6) inches caliper trunk, measured 4 ½ feet above the ground, or larger. Trees are to be represented by circles using the formula of one foot of radius for every one inch of trunk diameter. Unbroken circles indicate trees which are to remain. Dashed circles indicate trees proposed for removal;
21. Location of tree protection fencing;
22. Standard Notes for Trees and Natural Area Protection. (may be located on general notes sheet);
23. Areas of cut and/or fill greater than four feet;
24. Location of all wastewater irrigation areas;
25. Downstream buffer zones;
26. The location of wastewater treatment plants and all irrigation fields, if applicable;
27. The erosion control plan must show all water quality controls, and associated appurtenances to scale;

28. Sequence of Construction. (may be located on general notes sheet).

C. Water Quality and Drainage Control Plan

1. Water Quality Plan and Drainage Area Map

a) Water quality plan containing information on water quality controls and 2-year detention. The plan shall consist of an overall plan view of the proposed project and shall contain, at a minimum, the information listed below. Additional information may be necessary to demonstrate compliance with code requirements.

b) The plan must be a topographic map with two-foot contour intervals, at a scale of 1"=100 feet or less, and shall be sealed by a Professional Engineer with experience in water quality design, and shall contain the following information:

1) Drainage area to each water quality control and size of drainage in acres;

2) Proposed grading plan including:
   - arrows indicated the direction of flow,
   - stormsewer lines and inlets,
   - method used to divert stormwater around site,
   - creeks, open drainageways within property;

3) Location of existing and proposed water quality and detention basin;

4) Location of discharge from water quality and detention basins;

5) Location of maintenance access roads for drainage structures;

6) Drainage and water quality easements;

7) Location of all Water Quality Buffer Zones and the 100-year floodplain adjacent to the water quality control, and flood surface elevation of the waterways;

8) Demonstrate that 2 year detention is not required, or provide calculations for two year detention:
   - pre-development stormwater run-off flow rates,
   - developed stormwater run-off flow rates,
   - discharge flow rates of detention pond(s),
   - volume required in detention basin,
   - maximum water surface elevation for the two-year storm,
   - detail on outflow device used for detention pond,
   - detention pond detail with dimensions and elevations as needed for construction,
   - other information as necessary to demonstrate

compliance with the applicable ordinance.

b. Water Quality Control Plan(s)

All applications for development shall include a water quality control plan. This water quality control plan must be a construction plan sheet or sheets designed as the "Water Quality Control Plan" and sealed by a Registered, Professional Engineer with experience in water quality design. The plan shall include the following:

1) The location of proposed water quality controls, as described in the Project Report, which are necessary to meet the pollutant reduction requirements, indicating whether or not the design is a structural control;
2) Details of proposed water quality controls referenced specifically to the water quality methodology contained in the Water Quality Report (These details may be provided on a separate plan sheet, if necessary, with appropriate references and cross-sections provides on the Water Quality Control Plan);
3) Impervious cover calculations based on site area, and within the drainage area to the control;
4) Specific notes that address the following requirements: (may be located on general notes sheet)
    1) Maintenance measures and the appropriate enforcement mechanisms used (covenants, restrictions, etc);

E. Landscape Plan Requirements

The following items should be indicated on the plan:

1. Location, diameter, type and crown size of all existing trees of 6" caliper trunk, measured 4 ½ feet above the ground, or larger on the site, or any critical root zones that extend on to the site;
2. Solid circle depicting critical root zones for trees to be preserved; dashed circle depicting critical root zone of trees to be removed;
3. Landscape islands, peninsulas, or medians;
4. Graphic delineation of the street yard;
5. Method of buffering;
6. Compatibility screening if to be accomplished with vegetation;
7. Method and location of protective barriers (i.e. curbs, bollards, wheel stops, etc.);
8. Irrigation notes;
9. Specific location, species size (height and caliper) and quantities of new trees;

10. Specific location, species, container size and spacing of new shrubs, ground covers, and grasses;
11. Planting details for and/or specifications for installation of new plant materials;
12. Landscape calculations;
13. Specific location, species, and size and caliper inches required of replacement trees (if required). Graphically distinguish from other required trees;
14. Graphic delineation and methods used to insure the protection of undisturbed natural area;
15. Medians between parking bays containing native vegetive massing;
16. Methods to provide revegetation of disturbed natural areas, if necessary;
17. Methods used to provide screening of parking areas, water quality basins and visible areas of cut;
18. The seal and certification of a professional landscape architect or architect. (required for projects 1 acre or more) or an engineer or full time building designer (only for projects less than 1 acre) that the plan meets the requirements of the Village of Bee Cave Code of Ordinances.

F. Slope Map and Topographic Map

Submit a slope and topographic map drawn at the same scale as the erosion control and tree protection plan for all sites. The plan shall depict slopes of 0-15%, 15-25%, and over 25%. Slopes shall be calculated based on two foot contour intervals. If there are no slopes greater than 15%, all required information below may be shown on the Erosion and Sedimentation Control Plan.

Include the following information on this sheet:

1. All development or improvements to the site, including adequate building sites exclusive or any required setbacks and easements;
2. Site Area information. Impervious cover shall include both existing and proposed, given in acreage and as a percentage of the Site Plan;
3. Calculations of land area in acres for each slope class and each water quality zone within the development. The location, type, acreage, and percentage of impervious cover, including both existing and proposed for each slope category and totals;
4. The location of proposed temporary and permanent spoil disposal sites;
5. Transfer of Development Intensity information;
6. Location of all septic drain fields and wastewater irrigation areas;
7. Downstream buffer zones;
8. Location of the 100-year floodplain and the Water Quality Buffer Zone.

G. Environmental Assessment Report

1. Vegetative Element
   a) Tree survey;
   b) Vegetative survey for all non-residential and multi-family sites which shows approximate location of and identifies all significant vegetation on the site;
   c) A discussion explaining how the design of the plan preserves, to the greatest extent reasonable, any significant trees and vegetation on the site and provides maximum erosion control and overland flow benefits from the vegetation.

2. Geologic Element to Include:
   a) Description of all Critical Environmental Features with a reference to the topographic map which identifies their location and proposed means for protection of such areas;
   b) General description of topography, soils, and geology of the site.

3. Wastewater Element
   a) Environmental justification for sewer line locations in Water Quality Buffer Zones, if applicable, and a description of the construction techniques and standards for proposed wastewater lines;
   b) A description of wastewater disposal systems to be used;
   c) A description of any proposed on-site collection and treatment systems, treatments levels, and impact on receiving watercourses;
   d) Information on proposed onsite wastewater treatment levels and status of Texas Natural Resources Conservation Commission Permit;
   e) Information on the soils;
   f) Calculations to demonstrate that the wastewater irrigation limitations have been met, if applicable.

9.9.0 Engineer's Summary Letter

A. No construction plan will be accepted unless accompanied by a summary letter signed and sealed by the same registered Texas professional engineer who sealed the construction plans.

B. The summary letter should describe the proposed development and might include, but not limited to, the following:

   1. Acreage to be developed;
   2. Watershed in which project is located;
   3. Type of development;

4. Explanation of any proposed project phasing;
5. Methods to be used for handling stormwater runoff, i.e., drainage easements, channels, curb inlets, storm sewers, detention, sedimentation and filtration ponds, water quality control methods, etc.;
6. Effect the proposed development will have on existing and future drainage systems in the area and on the natural and traditional character of the land and waterways;
7. Justification for exception from Non-Point Source Pollution Control Regulations.

EXHIBIT I

Revisions / Corrections

Number	Description	Revise (R) Add (A) Void (V) Sheet No.'s	Total # of Sheets in Plan Sheet	Net Change Imp. Cover (sq. ft.)	Total Site Imp. Cover (sq. ft.) %	Village of Bee Cave Approv al Date	Date Imaged

10.00 Drainage and Water Quality Control Design and Construction Environment Compatibility Requirements

10.1.0 General

A. Drainage control structures and water quality control structures constructed within the incorporated limits and within the ETJ of the Village of Bee Cave must consider the layout and appearance of the controls as an integral part of the design. The controls must generally blend with the natural surroundings to maintain the natural appearance of the Village's environmental features.

B. The protection of existing trees and natural vegetation shall be maximized during development of the controls.

10.2.0 Compatibility Design Standards

10.2.1 General

The following design and construction standards for drainage and for water quality controls shall be incorporated into the design and construction standards required in this TCSS Manual.

10.2.2 Drainage Controls

A. The use of open channel swales in lieu of trapezoidal channels shall be used to the maximum extent practical; however, the two-year peak flood flow shall be conveyed in open channel swales. Swales shall have the following configurations:

1. Side slopes no steeper than 1 vertical to 6 horizontal;
2. Bottom widths which result in the two-year peak velocity of less than 2 ½ feet per second.

B. Open channels shall incorporate meanders to the maximum extent practical; however, the two-year peak flood flow shall be conveyed in a channel with the following meander configurations:

1. Channel sinuosity shall exceed 1.50, where sinuosity is the length between two points on the channel (along the channel thalweg), following the channel, divided by the straight-line distance between the two points;
2. The angle between the channel centerline and the valley axis is less than 90 degrees;
3. Sinusoidal curvature patterns may be regular or irregular;

4. The ratio of the design radius of curvature to the channel width shall be between 1.5 and 4.5.

C. Open channels shall incorporate water quality control features and erosion control features, including:

1. Natural vegetative buffer filter strips;
2. Natural stone revetments along the toe of channels in the zone below normal water levels and up to at least the peak two-year flood discharge level, unless peak discharges at the 25-year and 100-year floods require a different system for erosion and scour protection;
3. The splash zones of the channels shall incorporate bioengineering techniques including brush mattresses, brush layering, vegetative geogrids, dormant post methods, dormant cuttings, dormant root pads, and grass-like plants;
4. The bank zone of the channels shall incorporate bioengineering techniques including the same techniques required in the splash zone if the flow velocity exceeds 8 feet per second, native grasses with geotextile brush matting stabilization;

D. The general surfaces of all reinforced concrete drainage structures and of non-reinforced mass concrete shall be faced with a masonry layer consisting of mortared native stone.

10.2.3. Water Quality Controls

A. Earthen Detention or Detention Structures

1. Side slopes shall be not steeper than 1 vertical to 3 horizontal;
2. Surfaces shall be stabilized with erosion control, natural vegetation;
3. Pond layout shall follow the contours of the natural grades;
4. Erosion control measures shall comply with the same erosion control measures as required for open channels;

B. Concrete Structures

1. All concrete structures above permanent pool levels and above ground line and above backfill grade line shall be faced with a masonry layer consisting of mortared native stone.