B.3 SUBDIVISION PLAT CHECK LIST

B.3: SUBDIVISION PLAT CHECKLIST

____1. Application:
- ___a. Preliminary Plat (*not required for Landholding Plat)
- ___b. Subdivision Construction (*not required for Landholding Plat)
- ___c. Final Plat
- ___d. Variance request (if applicable)
- ___e. Warranty Deed
- ___f. Notarized Developer's Authorization Letter
- ___g. Articles of Formation and Certificate of Filing if the deed is under an LLC
- ___h. Title of Opinion or Title Report to show easements and lien holders
- ___i. Application fees

____2. Preliminary Plat (*not required for Landholding Plat)
- ___a. Drawn with:
  - __i. A minimum scale of 1" = 100' and presented on 24" x 36" sheets with sheet numbers.
  - __ii. A Scale and north arrow of the plat.
  - __iii. A boundary of the subdivision indicated by a heavy line and described by bearings and distances.
  - __iv. A metes and bounds description.
  - __v. A point of commencement and point of beginning.
  - __vi. A note of the type and location of all monuments and whether each was found or set.
  - __vii. A N.G.S. benchmark.
- ___b. Shown with legal descriptions:
  - __i. Legal descriptions with volume and page for all adjoining properties within 150 feet outside of the subdivision.
  - __ii. Lot and block numbers with the dimensions of each lot.
  - __iii. Net and gross acreage of each lot.
  - __iv. With the dimensions of and description of each already existing or recorded lot, street, alley, square, park, reservation, easement, or other right-of-way or encumbrance within the land being subdivided.
  - __v. With the dimensions of and description of each lot, street, alley, square, park, or other part of the tract intended to be dedicated to public use or for the use of purchasers or owners of lots fronting on or adjacent to the street, alley, square, park, or other part.
- ___c. Shown with applicant information
  - __i. Contact information of the subdivider and authorized agent responsible for the preparation of the plat
  - __ii. Certified by a surveyor registered to practice in this state, in addition to an engineer, as needed, who is also registered to practice in this state.
- ___d. Shown with existing conditions inside and within 150 feet outside of the subdivision and shall note the following:
  - __i. Name, description, location, and dimensions of existing streets (right-of-way), alleys, easements, and public / private encumbrances.

__ii. Description, location, dimensions, cross sections, and flow lines of existing water courses, roadside ditches, drainage and irrigation structures.

__iii. Name, description, location, and dimensions of existing lots, public areas, divisions and subdivisions. Include volume and page for all adjoining properties within 150' outside the boundary.

__iv. Name, description, location and dimensions of all structures, (i.e. houses, fences, etc.), and utilities (sewer, water, gas, cable, telephone, and electricity).

__v. Topography of the property. Note spot elevations on a minimum 100' grid with one-foot (1) contour lines. Contour lines with intervals that are less than a foot may be required to show topography.

__vi. Date of preparation of plat.

___e. Shown with floodplain information:

__i. Certified by a surveyor or engineer registered to practice in this state describing any area of the subdivision that is in a floodplain or stating that no area is in a floodplain.

__ii. Identification of the topography of the area.

__iii. The boundaries of the flood hazard area

__iv. The Base Flood Elevation (BFE) and the required minimum finished floor elevation of structures to be constructed on the property.

___f. Shown with proposed improvements

__i. Showed preliminary layout of the proposed topography and utilities

__ii. Complied with Drainage Plan and Drainage Report Checklist found within Appendix B.5

__iii. Reviewed and approved of on-site sewage facility by the County Environmental Health Department

___g. Any variance request approved

___h. Any restrictive covenants proposed to be imposed for the subdivision should be attached for reference. It should be noted whether these are existing or proposed.

___i. Included subdivision notes found within Appendix B.10

____3. Final Plat

___a. Drawn with:

__i. A minimum scale of 1" = 100' and presented on 24" x 36" sheets with sheet numbers.

__ii. A Scale and north arrow of the plat.

__iii. A boundary of the subdivision indicated by a heavy line and described by bearings and distances.

__iv. A metes and bounds description.

__v. A point of commencement and point of beginning.

__vi. A note of the type and location of all monuments and whether each was found or set.

__vii. A N.G.S. benchmark.

___b. Shown with legal descriptions:

__i. Legal descriptions with volume and page for all adjoining properties within 150 feet outside of the subdivision.

__ii. Lot and block numbers with the dimensions of each lot.

__iii. Net and gross acreage of each lot.

__iv. With the dimensions of and description of each already existing or recorded lot, street, alley, square, park, reservation, easement, or other right-of-way or encumbrance within the land being subdivided.

__v. With the dimensions of and description of each lot, street, alley, square, park, or other part of the tract intended to be dedicated to public use or for the use of purchasers or owners of lots fronting on or adjacent to the street, alley, square, park, or other part.

___c. Shown with applicant information

__i. Contact information of the subdivider and authorized agent responsible for the preparation of the plat

__ii. Certified by a surveyor registered to practice in this state, in addition to an engineer, as needed, who is also registered to practice in this state.

___d. Shown with floodplain information:

__i. Certified by a surveyor or engineer registered to practice in this state describing any area of the subdivision that is in a floodplain or stating that no area is in a floodplain.

__ii. Identification of the topography of the area.

__iii. The boundaries of the flood hazard area

__iv. The Base Flood Elevation (BFE) and the required minimum finished floor elevation of structures to be constructed on the property.

___e. Complied with requirements of Model Subdivision Rules (*not required for Landholding Plat)

__i. Followed the Model Rules Checklist found within Appendix B.4 (not required for Landholding Plat)

__ii. Noted on the face of the plat, the requirement that each purchase contract made between a subdivider and a purchaser of the land in the subdivision contain a statement describing the extent to which water will be made available to the subdivision and, if it will be made available, how and when.

__iii. Submitted results of soil analysis conducted by an independent testing laboratory for on-site sewage facilities design.

__iv. If the subdivision included construction plans, then As-Built plans in a format as required by the County (i.e., hardcopy, PDF, DWG, DXF) shall be submitted along with a letter of certification stating that all construction has been conducted in accordance with County specifications and that said as-builts are a true representation of the improvements conducted at the site.

___f. A digital copy of the plat in DWG, DXF, or a format as required by the County.

___g. Any variance request approved

___h. Any restrictive covenants proposed to be imposed for the subdivision should be attached for reference. It should be noted whether these are existing or proposed.

___i. Included subdivision notes found within Appendix B.10

____4. Approvals

___a. County Tax Assessor Collector

___b. Water CCN (*not required for Landholding Plat)

___c. Wastewater CCN or County Environmental Health Department (*not required for Landholding Plat)

___d. Drainage District

___e. Irrigation District

___f. City

___g. TxDOT (if applicable)

____5. Recordation

___a. Original Mylars
___b. Original Tax Certificates
___c. AutoCAD Files
___d. Recording Fees
___e. Subdivision Construction Agreement with Financial Guarantee (if applicable)

B.4. MODEL RULES CHECKLIST
COUNTY VERSION

B.4. Model Rules Checklist - County Version

___A. APPLICABILITY OF MODEL RULES

Landowner divides tract outside city limits in any manner that creates two or more lots of five acres or less intended for residential purposes. A lot is presumed to be for residential purposes unless the final plat and all deeds contain a restriction prohibiting residential use of the lot. (364.11, 364.1S(a), 364.31)

___B. ALTERNATE CRITERIA FOR LAND SUBDIVIDED PRIOR TO SEPTEMBER 1, 1989

If lot was divided into two or more parts to lay out a subdivision before Septemberl,1989, and the sub divider was obligated to but failed to have a plat prepared, approved, and recorded, then the current owner of an individual, occupied lot (other than the sub divider) may, if various conditions· are met (including having available water and sewer services meeting minimum standards), seek the commissioners court's approval of the plat that does not meet some of the standard requirements for plat approval under the Model Rules. Further, a group of owners of individual lots in such an unplatted subdivision may make a joint request. The procedural and substantive requirements for such approvals are set out in 364.57.

___C. NUMBER OF DWELLING UNITS PER LOT

____1. The following restriction shall be placed on the final plat and in all deeds and contracts for deeds: “No more than one single family detached dwelling shall be located on each lot.” 364..37

____2. A proposal for a multi-family residential lot must include adequate, detailed planning materials as required for determination of proper water and wastewater utility type and design. 364.37

___ D. SETBACKS

___ E. FINAL ENGINEERING REPORT- GENERAL CONTENTS FOR ALL OPTIONS

____1. Signed, dated and sealed by Texas professional engineer. 364.52

____2. Discussion of availability and methodology of providing water facilities and wastewater treatment to lots. 364.52

____3. Detailed cost estimate per lot for unconstructed water and wastewater facilities necessary to serve Jots. 364.52

____4. Construction schedule for each significant element needed to provide water or Wastewater facilities, including if financial guarantees are to be provided state dates and completion dates. 364.52

____5. Dedicate the sites for adequate water and sewerage facilities identified in the final plat to the appropriate retail public utility responsible for operation and maintenance of the facilities.

____6. The subdivider must: provide evidence that the water and sewerage facilities have been constructed and installed in accord with criteria set by Chapter 1 (Model Rules) and the approved plans and specifications, OR

(1) obtain all necessary permits for the proposed water and sewerage facilities (except for OSSF permits on individual lots), and

(2) enter into a Subdivision Construction Agreement with the county for the provision of unbuilt water and sewer facilities, and

(3) secure the Subdivision Construction Agreement with a financial guarantee, such as a bond, irrevocable letter of credit, or other alternative financial guarantee such as a cash deposit.

___F. WATER FACILITIES: MINIMUM STANDARDS AND ADDITIONAL FINAL ENGINEERING REPORT CONTENTS UNDER VARIOUS SERVICE OPTIONS

OPTION A. Water will be provided by connecting to an existing public water system.

____1. Written agreement between subdivider and an existing public water system [as defined in 364.18(10)] in substantially the form of Appendix D.l. Agreement must state that utility will be able to provide water to fully developed subdivision for at least thirty years. Agreement must state that subdivider has paid the costs of water meters, membership fees, water right fees, and all other fees associated with obtaining service. 364.32(a)(l), 364.52(1)(A)

____2. FINAL ENGINEERING REPORT- Additional Contents under Option A. If groundwater is to be the source of the water supply, include groundwater availability study that complies with the requirements of 30 TAC §§230.1 through 230.11 for water availability for public water supply systems and certifies the long-term (30 years) quantity and quality of available groundwater supplies relative to ultimate needs of subdivision. 364.52(1)(A)

OPTION B. Water will be provided by a utility created by the subdivider.

____1. Retail public utility, established by sub divider and certificate of convenience and necessity (CCN) obtained from TCEQ. 364.32(a)(2), 364.52(1)(B)

____2. Water system, water quality, and system design, construction and operation. Meet minimum criteria in 30 TAC 290.38-290.51 and 290.10l-290.120. 364.32(a)(2)

____3. Approval(s), by all entities having jurisdiction over the project, of plans and specifications for proposed water facilities. 364.52(1)(B)

FINAL ENGINEERING REPORT- Additional Contents under Option B.

____4. Groundwater availability study that complies with the requirements of 30 TAC §§230.1 through 230.11 for water availabi1ity for public water supply systems and certifies the long-term (30 years) quantity and quality of available groundwater supplies relative to needs of subdivision *if groundwater is to be the source of the water supply.* 364.52(1)(B), 364.32(a)(2)

____5. Evidence that sufficient water rights have been obtained and dedicated (through acquisition or wholesale water supply agreement) to provide sufficient supply to subdivision for at least 30 years *if surface water is the source of supply.* 364.52(1)(B), 364.32(a)(2)

OPTION C. Water will be provided by Individual wells or other non-public Systems.

____1. Test wells or wells drilled and located so as to be representative of Quality and Quantity of water generally available from supplying aquifer. 364.32(b)

____2. Groundwater availability study that complies with the requirement of 30 TAC §§230.1 through 230.11 for water availability for individual water suppl.y wells on individual lots and certifies the long-term (30 years) quantity and quality of available groundwater supplies relative to ultimate needs of subdivision. 364.32(b)

____3. Complete chemical and bacteriological analysis of sampled water by private laboratory of parameters on which there are drinking water standards. 364.32(b)

____4. Water quality of test well(s) meets water quality standards for community water systems set out in 30 TAC 290.104, 290.106, 290.108, AND 290.109, either (1) without any treatment of the water, or (2) with treatment by an identified and commercially available water treatment system 364.32 (b)

FINAL ENGINEERING REPORT- Additional Contents under Option C

____5. Quantitative and qualitative results of sampling from test wells in accord with 364.32 (Aside: the Model Rules also require that these results be made available to prospective property owners.) 364.52(2)

____6. A statement concerning the availability of groundwater supplies to serve the fully developed subdivision over the next 30 years. Statement may be based on information available from the TWDB's Office of Planning. 364.52(2)

____7. If the water quality of test well does not meet standards in 364.32(b) without treatment, the type of treatment system that will treat the well water to the specified water quality standards, the location of at least one commercial establishment in the county at which the system may be purchased, the cost of such system, the cost of installation of the system, and the estimated monthly maintenance cost of the treatment system. 364.52(2)

____8. Description of the required sanitary control easement (minimum separation distances of wells and water lines from various OSSF facilities -see Table X at 30 TAC 285.91(10). 364.52(2)

____G. WASTEWATER FACILITIES: MINIMUM STANDARDS AND ADDITIONAL FINAL ENGINEERING REPORT CONTENTS UNDER VARIOUS SERVICE OPTIONS

OPTION X. Wastewater will be treated by existing retail public utility.

____1. Written agreement between sub divider and wastewater utility in substantially the form of Appendix D.2. Agreement must state that utility will be able to treat the total wastewater flow from the fully developed subdivision for at least 30 years. Agreement must state that sub divider has paid the costs of all fees associated with connection to the wastewater collection and treatment system. 364.33(a)(2), 364.52(3)(A)

____2. Engineering plans for proposed collection lines comply with 30 TAC Chapter 317.364.33(a)(2)

____3. Permit from TCEQ to dispose of wastes. 364.52(3)(A)

____4. Approval, by all entities having jurisdiction over the proposed project, of plans and specifications for the proposed sewerage facilities. 364.52(3)(A)

____5. Greywater use (if proposed) meets the minimum criteria of 30 TAC Chapter 210. 364.34(a)

OPTION Y. Wastewater collection and treatment by a utility created by Subdivider.

____1. Retail public utility established by sub divider and certificate of convenience and necessity (CCN) obtained from TCEQ. 364.52(3)(B)

____2. Permit obtained from TCEQ by subdivider to dispose of wastes (from ultimate build-out population of subdivision) in accord with TAC Chapter 305. 364.33(a)(l), 364.52(3)(B)

____3. Approval by TCEQ of engineering planning materials for wastewater system under 30 TAC Chapter 317. 364.33(a)(l)

____4. Approval(s), by all entities having jurisdiction over the project, of plans and specifications for the proposed sewerage facilities. 364.52(3)(B)

____5. Greywater use (if proposed) meets the minimum criteria of 30 TAC Chapter 210. 364.34(a)

OPTION Z. Wastewater treatment by on-site sewerage facilities (OSSF).

____1. The disposal system does not utilize a borehole, cesspool, or seepage pit (unauthorized systems under 30 TAC 285.3(i)), or a pit privy or portable toilet. 364.33(b)(3)

____2. If a sewerage facility would dispose of more than 5,000 gallons per day, the facility complies with 30 TAC Chapter 317. 364.33(b)(2)

____3. If the sewerage facility serves single family or multifamily dwellings and the anticipated flow is 5,000 or less gallons per day, the facility complies with 30 TAC Chapter 285.364.33(b)(l)

____4. Review of OSSF proposal and inspection of systems by the TCEQ or its authorized agent as necessary to assure comp1iance with OSSF laws and rules. 364.33(b)(3)

____5. Greywater use (if proposed) accords with the minimum criteria of 30 TAC Chapter 285. 364.34(b)

FINAL ENGINEERING REPORT- Additional Contents under Option Z

____6. Planning materials required by 30 TAC 285.4(c), including site evaluation (30 TAC 285.30) and all other information required by the county's OSSF order. 364.52(4)

____7. Disposal of sludge from water treatment and sewerage facilities shall comply with 30 TAC Chapter 312 and Chapter 317. 364.35

____H. FINANCIAL GUARANTEES FOR IMPROVEMENTS:

If the water and wastewater facilities have not been constructed at the time final plat approval is sought, the commissioners court shall require the sub divider to execute a Subdivision Construction Agreement with the county secured by a bond, irrevocable letter of credit, or other alternative financial guarantee such as a cash deposit. 364.54(a)

____1. SUBDIVISION CONSTRUCTION AGREEMENT (SCA)

___a. Name of Subdivision.

___b. Amount of financial guarantee shall be the total of the costs listed in Exhibit B on the SCA and shall be in an amount determined by the commissioners court to be adequate to ensure proper construction or installation of the (not-yet-built-or-paid-for) water and wastewater facilities to serve the subdivision, including reasonable contingencies, but shall not be less than the amount certified on the plat by the subdivider's engineer. 364.54(b)(2), 364.52(d)

___c. Signatures of parties, with appropriate acknowledgments added

___d. Exhibit A. Metes and bounds description of the land being subdivided

___e. Exhibit B. Description of the required improvements, the estimated cost of completion for each improvement (including contingencies, as determined by commissioners court), and the date by which the particular improvement will be completed (The completion date is expected to be three years after the plat is approved by the commissioners court). This operability date will thus be no sooner than the latest of the completion dates. The operability date may be extended by a city or county Under the circumstances set out in 31 TAC 364.65 (see checklist, below) and the parallel statutory provisions in Local Govt. Code 212.0105(c), 232.026, or 232.075.

____2. FINANCIAL GUARANTEE

___a. Lists as sole beneficiary the county judge, in his official capacity, or the judge's successor, and must be approved by county judge. 364.54(c)(3)

___b. Conditioned on completion of water and wastewater facilities meeting the minimum standards of the model rules, within the time stated on the plat (or within any extension of time granted by commissioner's court). (Expiration date will be the same as the operability date). 364.54(c)(4)

____3. EXTENSION OF OPERABILITY DATE

Commissioners court may extend the date stated on plat by which required water and sewer facilities will be fully operable if:

(1) the extension would not allow a residence to be inhabited without water and sewer services meeting the model rule standards, and

(2) a financial guarantee (original or new) covers the period of extension, and

(3) the court finds the extension is reasonable and not contrary to the public interest. 364.56

No more than two extensions are allowed.

___I. DISAPPROVAL

If a plat does not meet the requirements prescribed by or under Chapter 1 (Model Rules), the commissioners court shall refuse to approve the plat. 364.55(b)

B.5 SUBDIVISION COMPREHENSIVE DRAINAGE PLAN AND REPORT CHECKLIST

B.5: SUBDIVISION DRAINAGE REPORT CHECKLIST

____2. Cover Sheet with the following information:
- ___f. Project name
- ___g. Property ID
- ___h. Project location map
- ___i. Engineering Firm Information (Name/Address/Firm Reg. #)
- ___j. Engineer's Information (Name/PE#)
- ___k. Engineering seal and date

____6. Sheet index

____7. Drainage (narrative)
- ___a. Legal description
- ___b. Project location description (ETJ, Drainage District, etc.)
- ___c. Existing use and existing drainage conditions/drainage patterns.
- ___d. Statement regarding whether any portion on the project is located within the FEMA floodplain. Include community panel number and zone information.
- ___e. Statement regarding the soil conditions/types in the area
- ___f. Proposed use and proposed drainage improvements, runoff routing and detention

____8. Floodplain map – FEMA floodplain map showing location of subdivision including NFHL FIRMette with community panel, zone description, and site location.

____9. USDA Web Soil Survey – Soil conditions, map symbol, soil name, group and class (Web Soil Survey – usda.gov)

____10. Drainage Area Map including:
- ___a. Contour map showing the drainage basin the subdivision is part of and the location of the subdivision. The contour map shall also show streets, street names, ditches, general drainage flow direction to ultimate outfall, city limits, ETJ, and any other major land features. All existing elevation shall be one foot contours extending 500 feet outside subdivision boundary. (The National Map – Advanced Viewer, may be used; to show flow arrows turn on National Hydrography Dataset layer; to show contours turn Elevation Contours layer on)
- ___b. Existing drainage areas (within the drainage basin the subdivision is part of)
- ___c. Existing drainage outfall location

____11. Proposed Drainage Area Map including:
- ___a. Proposed drainage areas
- ___b. One inlet per drainage area

____12. Calculations for Drainage within the Basin this subdivision is part of:
- ___a. Drainage calculations for each drainage area including all supporting calculations (c values, time of concentration calculations, rainfall intensities, etc.)

___b. Pre-development 10-year flow in cubic feet per second (cfs) for all existing drainage outfall locations including all supporting calculations (c values, time of concentration calculations, rainfall intensities, etc.)

___c. Analyze and provide calculations showing that the drainage way receiving drainage from the final drainage outfall is adequate, including flows from other drainage contributors within the drainage basin.

____13. Calculations and Design Requirements for Subdivision Drainage including:

___a. Drainage calculations for each drainage area including all supporting calculations (c values, time of concentration calculations, rainfall intensities, etc.)

___b. One inlet per drainage area

___c. Pipe and inlet capacity calculations

___d. Hydraulic grade line calculations for the design storm. The hydraulic grade line shall be a minimum of 6" below the lowest gutter elevation for the design storm. The hydraulic grade line shall also be a minimum of 6" below the lowest gutter elevation at the peak water surface elevation (WSE) for any drainage infrastructure that outfalls into a pond and/or at the base flood elevation (BFE) where applicable.

___e. The engineer shall strive to achieve a minimum cover of 3 feet over all storm sewer in paved or unpaved areas where possible. If a minimum cover of 3 feet is not possible, the engineer shall provide a storm sewer type that is structurally capable of supporting the proposed loads.

___f. Flow capacity calculations per these rules of all existing and proposed drainage ways and drainage structures within the subdivision to the final drainage outfall acceptable by the County Engineer. All proposed roadways and drainage systems shall be designed based on proposed/post-developed conditions.

___g. Analyze and provide calculations showing that conveyance to the final drainage outfall is adequate for the flow from the subdivision.

___h. The minimum slope for curb & gutter is 0.20% and 0.15% for roadside ditches.

___i. For grass-line channels, including roadside channels/ditches, the maximum permissible velocity for the design storm is six (6) feet per second and includes all transitions to or from channels and waterways with similar or different materials. In all cases, the velocity for the design storm must be non-erosive. The minimum permissible velocity is two (2) feet per second.

___j. The maximum velocity in the drain ditches shall be 3 fps for bare ground and 6 fps for vegetated ground.

____14. Calculation for Roadway Drainage Streets

____15. Calculations for Major Storm Water Conveyances

____16. Calculations for Detention Pond

___a. If detention ponds are proposed, provide required storage and proposed volume calculations.

___b. Detention is required for all residential subdivisions of five (5) or more acres in addition to all commercial development. The detention basin shall be designed to collect the post-development 50-year rainfall event and release at the pre-development 10-year rainfall event. If the project is required to release less than the pre-development 10-year flow (e.g., along a TxDOT roadway), the actual discharge rate shall be used to calculate the required storage of the detention basin.

___c. The Modified Rational Method (MRM) shall be used to determine stormwater storage requirements. The calculations are carried out iteratively in a tabular form until a duration yields the greatest storage volume required.

___d. Pre-development 10-year flow in cubic feet per second (cfs) for all proposed drainage outfall locations including all supporting calculations (c values, time of concentration calculations, rainfall intensities, etc)

___e. All pipes used to drain stormwater management/detention basins shall be reinforced concrete pipe (RCP) with a minimum diameter of 18". If the size of pipe necessary to drain such basins is small enough such that it is not readily available as RCP, alternative pipe materials (i.e.,PVC, HDPE) may be proposed for consideration by the County Engineer.

___f. If widening roadside ditch, provide required storage and proposed volume calculations.

___g. If widening/excavation a drain ditch, provide required storage and proposed volume calculations

___h. Storm runoff may be detained within parking lots. However, the engineer should be aware of the inconvenience to both pedestrians and traffic. The location of ponding areas in a parking lot shall be thoroughly planned to minimize this condition. Stormwater ponding depths in parking lots are limited to an average of eight (8) inches with maximum of twelve (12) inches

____17. Proposed drainage plans including:

___a. All drainage standard details and specifications shall be in accordance with current TxDOT standard details and specifications, unless otherwise provided in these rules.

___b. Flow directions arrows with slope labels

___c. All lot grading shall have a desired slope of 2.00%, and a minimum slope of 0.10%, for drainage over land.

___d. Adequate drainage in the subdivision to avoid the concentration of storm drainage from lot to lot. All plans of the drainage improvement of modifications necessary to provide positive drainage away from all buildings and coordinate individual lot drainage with the proposed storm drainage pattern for the area.

___e. High points

___f. Storm sewer and/or open channel plan and profiles with existing and proposed ground.

___g. Hydraulic grade line for the design storm, shown in storm sewer and/or open channel profile. The hydraulic grade line shall be a minimum of 6" below the lowest gutter elevation for the design storm. They hydraulic grade line shall also be minimum of 6" below the lowest gutter elevation at the peak water surface elevation (WSE) for any drainage infrastructure that outfalls into a pond and/or at the base flood elevation (BFE) where applicable.

___h. Existing and proposed storm sewer and inlets

___i. All storm sewer and culvert pipes. The minimum diameter of pipe shall be eighteen (18) inches and shall be constructed of reinforced concrete pipe (RCP)

___j. Pipe length, size, class, slope, flow line, flow rate (Q), flow velocity (V), Flow depth (D)

___k. Utility crossings and resolution of any conflicts

___l. Top of cub elevations

___m. Ditch flow line elevations

___n. Manhole rim and invert elevations

___o. Trench protection limits

___p. All applicable details

___q. Proposed drainage outfall locations and owner of outfall locations

___r. All necessary right-of-ways and easements required for drainage improvements shall be shown on the plans.

___s. Detailed plans and specifications for all on-site improvements, in addition to off-site improvements which must be completed prior to final plat approval.

___t. If detention ponds are proposed, provide plans showing pond sizes, locations, and discharge line sizes; and/or other proposed stormwater management measures used to comply with detention requirements, provide cross-sections (longitudinal and perpendicular) with proposed water surface elevation at the peak storage elevation clearly shown and labeled.

___u. If widening roadside ditch, include a plan and profile of the proposed and existing roadside ditch, street ROW, edge of pavement, slopes, and property line. Provide cross-sections (longitudinal and perpendicular) with proposed water surface elevation (WSE) at the peak storage elevation clearly shown and labeled. Demonstrate by a profile that water will flow to an outfall location, or for a minimum of 1,500 feet or 2 feet in elevation

___v. If widening/excavating a drain ditch, include a plan and profile showing the excavation limits and location of ramps, ditch ROW, irrigation canal and canal ROW (if applicable), property lines, base flow water surface elevation (WSE), flowline, slope, existing ground, and details. Provide cross-sections (longitudinal and perpendicular) with proposed water surface elevation (WSE) at the peak storage elevation clearly shown and labeled.